DOCUMENT RESUME

ED 308 132 SO 020 103

AUTHOR Morales, Edmundo, Ed.
TITLE Drugs in Latin America. Studies in Third World Societies, Publication Number Thirty-seven.
INSTITUTION College of William and Mary, Williamsburg, VA. Dept. of Anthropology.
PUB DATE Sep 86
NOTE 219p.
PUB TYPE Books (010) -- Information Analyses (070)

EDRS PRICE MF01/PC09 Plus Postage.
DESCRIPTORS American Indian Culture; *Developing Nations; Drinking; *Drug Abuse; Drug Addiction; *Economic Factors; *Economic Opportunities; Foreign Countries; *Illegal Drug Use; World Problems
IDENTIFIERS Bolivia; *Cocaine; Coca Paste (Drug); Crack; Drugs; Drug Trafficking; *Latin America; Mexico; Peru; South America

ABSTRACT

The eight papers presented in this document discuss the link between substance and human life in Latin America and help readers uncover some of the myths surrounding drugs, especially cocaine. Contributions range from extensive research to field work and observation. Enrique Mayer demonstrates that the coca leaf is a vital Andean cultural element whose use and economic role will not be easily replaced or substituted. Myrna Cintron traces the historical roots of the cocaine problem, arguing that the current crisis is part of a periodic cycle that has seen cocaine change from recreational use to an economic commodity. Ray Henkel describes and analyzes the development of the coca industry and the impact it has had on Bolivia. Harry Sanabria presents research on out-migration from a high altitude peasant community in Bolivia and social differentiation based on coca agriculture. Luis Loyola explores the historical functions that alcohol consumption has had in peasant and Indian communities in Chiapas, Mexico, and provides an ethnographic account of the drinking pattern in Tenejapa, Chiapas. Raul Jeri's work on coca paste and Peruvian cocaine addiction shows that patients who present neuro-psychological disorders prior to cocaine exposure develop faster physical and psychological dependence. Rosa del Olmo examines the plight of women trapped in the highly rewarding underground economy. Edmundo Morales' paper on coca paste and crack explores the overall pervasive use of cocaine, its mechanisms, and the dynamics of manufacturing and marketing. Reference lists follow each paper. (GEA)

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1986

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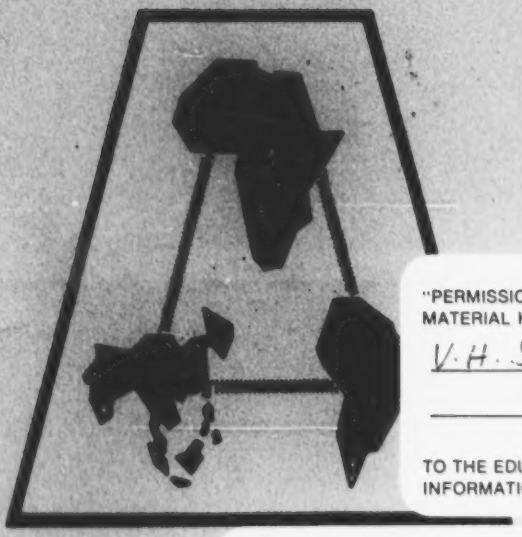

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Studies in Third World Societies

PUBLICATION NUMBER THIRTY-SEVEN

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STUDIES IN THIRD WORLD SOCIETIES

is devoted to the study of cultures and societies of the Third World. Each publication contains papers dealing with a single theme or area, addressed both to scholars and laymen as well as to teachers, students, and practitioners of social science; the papers should be of value also to applied social scientists, planners, demographers, community development workers, and other students of human cultures and societies.

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Library of Congress Catalog Card Number: 87-073040

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PREFACE

The editors' original plan was to dedicate this issue to the cultural, economic and political significance of drugs in the developing countries. However, the papers selected for this volume indicate the burgeoning academic interest in the social, cultural, economic and political significance of coca and cocaine in the Americas.

The eight papers selected for this issue discuss the substance-human-life link in Latin America, which will help the reader uncover some of the myths knitted around drugs, especially cocaine. While some readers will increase their knowledge of drugs, others will have the opportunity of travelling from the barren mountains of Bolivia to the urban ghettos of New York. Contributions are original and unique in that the authors share their works ranging from extensive research to field work and observation. My general introduction briefly pictures drug production and trafficking as an economic continuum and their political implications both in producing countries and consumer societies.

Enrique Mayer tries to demonstrate that the coca leaf is an Andean cultural element, the use and economic role of which is difficult to substitute. He further argues that it was the western world not the Andean man, that started and used the alkaloid contents of the coca leaf. Myrna Cintron's paper traces the historical roots of the cocaine problem. Cintron's argument is that the current cocaine crisis is part of a periodic cycle which has changed from its recreational use to an economic commodity. The Latin Americanist Ray Henkel makes it clear what cocaine means for a poor country such as Bolivia where the power of

coca-dollars is more visible than anywhere else. Two young anthropologists whose interest on traditional people led them to lands they never dreamed of and where they faced language barrier, group resistance, and many circumstances that involve collecting data to make sense out of the obvious things going on in the field, successfully encapsulate their months of work in a few pages. Harry Sanabria presents his work on out-migration from a high altitude peasant community in Bolivia and social differentiation based on coca agriculture. Alcoholic beverages and organic substances found in nature have been widely used in the Americas before and after the Spanish conquest. Loyola illustrates this phenomenon with his work on Chiapas, Mexico.

The well-known Peruvian psychiatrist Raul Jeri contributes to this issue sharing his many years of work on coca paste and cocaine addiction in Peru. His findings show that patients who present neuro-psychological disorders prior to their exposure to cocaine develop faster physical and psychological dependence. This volume also includes a feminist point of view on drug production and trafficking. The experienced Venezuelan criminologist Rosa del Olmo tells us of the plight of some women who, because of the current Latin American economic crisis, find themselves trapped in the highly rewarding underground economy. My paper on coca paste and crack will picture the overall pervasive use of cocaine, and its mechanisms and dynamics of manufacture and marketing.

I am convinced that these studies of drugs in the Americas, like many other topical works on developing societies, will constitute one of the best means available for informing scholars, students, and lay people about the past and present behavior of substance producers and users. I hope that the editors' initiative on such timely social problem will spur many other students of developing countries to take up the issue more seriously, for the literature covering the participation of traditional groups in the international drug scene does not come any closer to reflecting reality. The political significance of drugs in America should not deter, I believe, critical analyses of our definitions of drug control policies.

I wish to thank the editors for their confidence and patience. Finally, my recognition to the editorial staff for their fast and accurate preparation of the final product.

INTRODUCTION*

In 1981, when I returned to my birthplace in northern Peru to conduct research on land reform, I found that the peasants of the Andes villages had become dependent on the worldwide traffic in cocaine. Their efforts to gain cooperative ownership of the land they farmed had faded. Instead, most of the able-bodied men in the villages were busy packing for the long trip down the eastern face of the Andes. Most of them would work for months in coca-processing laboratories hidden in the jungle. Some would earn cash income for selling food, especially pork and beef to the managers of the cocaine factories. The worldwide demand for cocaine had changed their lives.

I was dismayed to see so much urgently needed food being shipped from the impoverished highlands to the jungles. I felt that the enormous growth of the cocaine market had led my people down a false path. They were gaining cash income, perhaps, but in the bargain they were becoming increasingly addicted to cocaine and were neglecting the need for more basic social progress in their own villages.

But I also knew that cocaine was simply another in a long line of substances for which huge markets had emerged in the richer nations, with drastic results for the less-developed world. Foremost among those substances was sugar. In the thirteenth century, sugar was a luxury available only to royalty. But as its use as a source of energy and as a basis for alcoholic beverages--especially rum--became more widespread, the demand for sugar production became one of the main causes of European expansion into the tropical regions of the world. Moreover,

sugar production required that huge amounts of land be devoted to growing sugar cane, and many cane cutters were needed to harvest the crop. Thus, along with the expansion of sugar production went slavery, first in parts of North Africa and the Azores and later in the Caribbean islands and Latin America. And sugar was only the beginning. The cultivation of cacao and banana in Ecuador was spurred by the emergence of mass markets in the developed nations of the West. The extraction of gold and silver by the Spanish conquistadors and the exploitation of raw materials in single export economy countries marked periods of economic development, underdevelopment, dependency, poverty and overpopulation in huge parts of Africa, Asia, and Latin America.(1)

The last wave of the addictive exploitation of natural resources in underdeveloped countries for the benefit of the international market, however illegal, is the mass production of the coca leaf for the manufacture of cocaine. The three coca producing countries (Bolivia, Colombia, and Peru) have at least 240,000 hectares (592,800 acres) of coca plant,(2) thus creating new social relations of production in the North-South international political arena where the connection between the dependent peasant and the international market is less indirect than in the formal, legal economy. This new link cuts off the brokerage role of national governments in drug source countries.(3)

The question of drug production is only a fraction of the much larger problems that Third World countries are currently facing, which has come to the foreground with coca and cocaine. The advanced industrial societies' hedonistic craving has again come to play an important role among groups with limited resources, economically not any different from the craving of the Spanish for spices which led to the discovery of the New World, or from the expansion of oil companies, or from the General Foods banana boom, or from the tobacco and alcohol industry in America. The real difference between the illegal production of drugs and other addictive substances such as alcohol and tobacco may reside in the fact that the mass use of cocaine, heroin and marijuana does not report direct revenues to producing countries or to consumer societies. This may be enough excuse to exacerbate our "War on Drugs" mentality without drawing distinctions between the Miami Vice

villains and the poorest of the poor people in the Third World.

During the Spanish Colonial times, the Catholic Church disapproved the coca chewing habit, claiming that the divine status of the plan was against the postulates of Christianity preached in the colonies.(4) However, the moral and religious goals of the Church contradicted the political and economic ambitions of the Spanish kingdom. The objective of the Spanish was to use coca to exploit the Indian populations two ways: (1) they controlled the production and the marketing of coca leaf and (2) encouraged coca chewing in Catholic religious manifestations and in forced and individual labor. The habit of coca chewing and alcohol drinking were, and still are, tolerated in religious festivities. Compliance with religious obligations and taxes may have been more important than questioning the Indian's immersion in coca chewing. Coca leaf and alcohol are present in almost all religious celebrations and in folklore manifestations. These two substances have been used extensively by feudal lords as well as by international corporate establishments to derive their incomes and profits. During their year-round free labor obligations, the Indian serfs were provided with a daily ration of coca leaves and alcoholic beverages. The lord's rights to demand labor were tied to his subjects' physical dependency on coca and alcohol. Besides his payment of rent to his direct master, the feudal subject's millenarian habit was levied by modern governments which were always connected to national landed classes and to international corporations. Both the Spanish conquerors and international corporations used national resources exhaustively to their own benefit.

The post war efforts to develop the Third World created needs which were not satisfied by local and national economies. In many countries, the exigencies of the ever-expanding modern market economy require a cash flow which can be fulfilled only through participation in one of the phases of the underground economy. In Bolivia and Peru, for example, hundreds of elementary and high school students, single parents and migrant wage laborers go to work in the cities and towns seeking that economic missing link, impossible to acquire otherwise. Minimum wages in the illegal drug economy are much higher than national legal wages. In the quest to satisfy their modern needs imposed

from without, migrants, wage laborers and the indigenous peasants come into contact with the modern money market through the illegal economy rather than by way of legal economic institutions. Participation in the false economy makes the indigenous believe that he is being developed and that his integration into the national society is inevitable.

In the production, distribution, and marketing of addictive substances there is a clear division of labor at local, national and international levels. As with all social relations of production, those who contribute most to the creation of the commodity (drugs) are less economically rewarded than those who market the end product in the underground industry. The dynamics of the underground world economy go far beyond the activity of merely making a living. Power groups and impoverished middle class segments uphold or regain their status because of their control of drug traffic.

Drug producing countries are on the horns of serious social, economic, and political dilemmas. They intend to protect the social habit of their traditional groups and blame consumer societies for the existence of the powerful drug industry. However, these same governments also accept the imposition of new policies of production from the United States. This quasi-bilateral agreement between countries with limited economic resources and an international power make the drug source countries dependent on foreign aid for the solution of their traditional and modern social problems, i.e., eradication of drugs and preservation of their traditional habits. Because of their need for revenues, drug source countries' actions against the illicit economy are limited to making some headlines and cooperating in some international drug fiascos, similar to "crack" raids in New York, as reactions to pressure from the media.

The possible alternative strategies to fight drug supply may be summarized in the (1) reduction of demand in the United States, (2) tight and sophisticated law enforcement and political pressure from the United States to drug producers and gateway nations, (3) eradication campaigns including the violent destruction of drug crops at source, and (4) a minimal crop substitution economic development. Evidently, the ideal objective of substantially cutting down the supply of drugs seems to be the second and third

strategies. Some people who may not realize the complexities of the economic forces of supply and demand may think that the government could stop drugs from coming into the country. As one US official puts it regarding cocaine,

> in the end it simply boils down to supply and demand. The bottom line is to get Peru and Bolivia to get rid of their coca plants. You can kick ass and do all sorts of raids. But as long as you have that supply, they are going to be in business. If you don't stop the supply of raw materials, you don't turn the water off.(5)

But is turning the water supply off the best measure to stop thirst (craving for drugs)? Supply only satisfies the needs of demand. So, rather than cutting the supply of water, would it not be more practical and more effective to teach people, especially Americans, how to quench thirst without drinking water?

Drug production and trafficking will continue as long as there is demand in the United States. The international crime networks and the national middle class entrepreneurs will pursue the fabulous profits that can be made from drugs.

> It simply cannot be eradicated nor can any other commodity be substituted for it. We can accept it as a fundamental fact of life. The United States has resisted accepting this fact because we have a bureaucracy and a group of drug-enforcement people which have a vested interest in preserving or even expanding their programs. This phenomenon is not unknown in bureaucracies. In fact, the Reagan administration has railed against this process in a number of areas in our society. The resistance of people who make their living and whose careers and futures are tied to claiming victory from time to time with one or another bust and telling us how much they have been able to confiscate, and so on, is a similar phenomenon.(6)

Recently, the present administration manifested its intentions to "beef up law enforcement activities along the Southern border of the United State" with $500 million.(7) However, in January 1987, Reagan announced cuts in funds proposed for local law enforcement and drug education efforts.(8) This American prerogative, which seems to be the outcome of the underestimation of the problem of drug production, traffic and use will continue to prove negative and costly to the American taxpayer. And as one anonymous official at the American Embassy in Mexico has made it clear,

> [the] United States cannot be too critical of the [drug producing countries] if it won't take responsibility of the problem of consumption back home.(9)

Drug production and use are no exception from their political use. Anti-crack rallies and television campaigns featuring major politicians, popular bands, balloons and T-shirts are organized on the eve of election days, not much different from the circus and bread offered to small populations by drug traffic barons in South America, while hustlers, street dealers, and bootleggers are actually running the ghettos of New York and crack and base houses are ever increasing. In the end, drug policies are designed to maintain an army of methadone patients, and to use petty traffickers and street dealers as scapegoats.

In their attempt to reduce the production of cocaine, the federal law enforcement plans also include control over distribution and marketing of chemicals required for refining coca paste into cocaine hydrochloride. The interception of chemicals going to South America has brought about two negative effects in the drug consumer centers. An unrefined version of cocaine, bazuco, has appeared in the streets of New York and Miami and a three-pellet vial of crack is retailing for as little as $3; that is, a schoolchild's daily allowance may suffice to buy crack for a "good high."

NOTES

*The first three paragraphs of this introduction appeared in "Addictive Substances and World Markets," in William Kornblum, Sociology in a Changing World (New York: Holt, Reinhart and Winston, 1987), p. 415.

1. For an analysis of the effect of single export economy on the traditional and modern groups in Latin America see for example, David W. Schodt, Ecuador: An Andean Enigma (Boulder: Westview Press, 1987).

2. The U.S. Congress, Selected Committee on Narcotics Abuse and Control, Latin American Study Missions Concerning International Narcotics Problems (Washington, D.C.: US Government Printing Office, 1986) breaks down the 240,000 hectares to 135,000 for Peru, 80,000 for Bolivia, and 25,000 for Colombia.

3. For an extensive analysis of the impact of the illicit economy on national societies, see Edmundo Morales, Cocaine: White Gold Rush in Peru (Tucson: University of Arizona Press, 1989).

4. See Pablo Jose Arriaga, translated by L. Clark Keating, The Extirpation of Idolatry in Peru (Lexington: University of Kentucky Press, 1968), p. 43.

5. Richard T. Pienciak, "Tracking the sacred leaf," Daily News, 15 December, 1986, p. 5.

6. Bruce Bagley, "The Colombian Connection: The Impact of Drug Traffic in Colombia," in Deborah Pacini and Christine Franquemont, eds. Coca and Cocaine: Effects on People and Policy in Latin America (Cambridge, MA: Cultural Survival, 1986), p. 99.

7. Myron S. Waldman, "Reagan Orders Testing, Urges $894M Drug Plan, Newsday, 16 September, 1986, p. 4.

8. Bernard Weinraub, "Reagan Call for Cut in Drug Fight Ignites the Anger of Both Parties," New York Times, 8 January, 1987, p. A1.

9. William Stockton, "New Envoy to Push U.S. Role in Mexico Drug Fight," New York Times, 26 January, 1987, p. A15.

COCA USE IN THE ANDES

ENRIQUE MAYER
University of Illinois at Urban-Champaign

INTRODUCTION

For millennia there has been a legitimate way of consuming coca in the Andes. This traditional manner is, however, becoming discredited and threatened through associations Western people make with cocaine. In fact, the two have very little to do with each other. This article takes the position that if coca production were to disappear as a result of international pressures, then once more, as the Spanish expression goes, "justos pagan por pecadores" (just people pay for sinners). This article is written in response to policy that attempts to stem an enormous illicit international drug traffic through campaigns to eradicate coca cultivation in Peru and Bolivia.

To make my position clear, first it is necessary to emphasize the enormous distance between coca use in the Andes and the use of cocaine in the modern Western world. They compare to each other in terms of potency and danger as the use of donkeys and jet planes compare to each other

as means of transportation, and therefore the conclusions valid for cocaine are not applicable to coca use.(1)

Second, after having read the literature on the medical effects of coca mastication in the Andes, even though I am not in the medical profession, I concur with the generalized opinion that, unlike cocaine consumption, coca use is as injurious to the health of its users as is the use of coffee or tea, and certainly less dangerous than cigarettes.(2)

Third, my position in defense of the right to masticate coca is based on the role it plays as a nexus in social integration. Traditional coca use is a culturally defined symbol that expresses group membership and the will of Indians to maintain their ethnic identity. For this reason, I believe that the medical arguments over whether coca use is beneficial or harmful to the individual user are less important than the social reasons for its use. Therefore, attempts to suppress coca use constitute paternalistic interferences of the outside world which imagines the Indian of the Andes to be like an infant and incapable of making decisions by himself.

Finally, I argue that the elimination of coca use constitutes, once more, an attempt to destroy Andean cultural patterns and lifestyles. Indians in Peru have been defending themselves and resisting cultural aggression for almost five hundred years. A new measure, such as the eradication of coca use from their lives and culture, deserves -at the very least- a discussion and evaluation of the consequences that such a policy would produce. It also requires that we listen to the opinions Indians may have on this matter.

This article, then, contributes to the debate on coca eradication from that perspective. The above points lead me to insist that in the arguments in favor of or against coca use in the Andes, it is as necessary and even more important to pay equal attention to the social, cultural and symbolic aspects of coca as to those concerned with health and political issues.

COCA'S ECONOMIC FUNCTION

Almost every culture in the world has one or more forms of stimulation, be it through pharmacological or other means. In Western culture, we have alcohol, tea, coffee, tobacco, and a host of over-the-counter drugs such as stimulants and tranquilizers, not to mention the illegal substances. Among non-chemical means we have television, the thrill of speeding in cars and roller coasters, and the stimulation provided by crowd participation in spectator sports. In the Andean world, coca has been one of the main stimulants for 4,000 years or more.(3) In no sense has coca been an impediment to socio-cultural development or a cause for degeneration of Andean culture or society. Indeed, Andean Indians developed one of the great civilizations of the world. If Andean culture is in decline today, one has only to look at centuries of Spanish conquest, western domination, concomitant societal disintegration and population destruction, land and resource expropriation, forced acculturation and imperialist exploitation to understand the source of the problem. To lay the blame on the harmless coca leaf is to find a simple and convenient scape-goat.(4) Indeed, as proof of this fallacy we may consider Ecuador where coca use has been totally eradicated in the last 200 years without there having been a significant change in the miserable conditions of the Indian groups in that country. This clearly shows that coca is not the cause of underdevelopment and lack of progress.

All cultures classify consumption goods according to a scale in which one can clearly distinguish three categories. These are: basic necessities, luxury goods, and prestige goods.(5) Those goods that satisfy the primary human needs, such as hunger and shelter, and which guarantee normal continuity of life are basic necessities. People have pragmatic attitudes towards these goods. If someone needs food, it is given to him or her. It has also been shown that this attitude is restricted to encompass only the domain of primary kinship groups.(6) In all pre-capitalist cultures, including the Andean culture, it is inconceivable that people would let a family member go hungry.

The second category is luxury goods. These are relatively scarce goods which provide personal gratification and give pleasure. They are not only used to indulge, but

to establish ties of friendship and good will, as when they are offered as gifts or are shared. This role occurs precisely because they have a quality that provides personal satisfaction. Therefore, a different attitude is assumed towards these goods than to basic necessities. In our culture we teach our children this attitude; it is learned. For instance, when we give chocolate to children we tell them that they should not eat it all by themselves but should share it among siblings and friends. One can also observe how a luxury good becomes a medium of exchange: one of the children barters chocolate, to use our example, for a toy and another uses it to gain a permanent ally. Luxury goods thus have a personal gratification value as well as a social value. This is how coca is used in the Andes. It is considered not a subsistence good but a luxury, and is treated as such.(7)

The above discussion leads us to our first conclusion that linking coca with food is a travesty of reality. Food belongs to a different category of goods from coca and is treated differently in the Andean world. Coca is never confused with food nor ever treated as a substitute for it. For this reason we have to reject the implicit equation, so frequently made by observers of the Andes, that coca replaces or displaces food; that people prefer coca over food; or that many people masticate coca because coca removes hunger pangs and that is why coca chewers are malnourished.(8) In any case, the suppressed hunger pangs return after the effects of coca have worn off.

The third category of goods consists of prestige goods. These are symbols of power and recognition of status. Attitudes towards these goods are intertwined with the attitudes we have towards positions of status and persons with power. In Andean culture, textiles have this function.(9) The use and circulation of these kinds of goods is determined by the changing contexts of power and prestige of the persons involved. A western example illustrates this point. In an office, the hierarchy of its bureaucrats is expressed in the privilege to use such exclusive status symbols as well-furnished offices with original works of art on the walls, executive bathrooms, corporate dining facilities, a company car, and so on. Access to these goods does not always depend on the purchasing capacity of the individual (since these are provided by the corporation), but

rather it is the position of director that goes with the privilege to use these furnishings. Rising in the hierarchy within the division is the way in which access to these goods is achieved, and for that reason the circulation of these goods reflects the changing power and status positions of the individuals.

In this sense it has been remarked that the use of coca was restricted to the privileged classes in the Inca Empire, that is, to the nobility and priesthood, while popular classes were excluded from the right to use coca. I believe this argument lacks validity. It is a Spanish misinterpretation of what I believe did take place in the Empire, which was that the privilege to distribute coca was a fundamental aspect that differentiated a "noble" from a "commoner."(10)

Let us return to the category of luxury goods, where coca is prominent. Precisely because they are defined as such, luxuries are intensely exchanged, distributed, given away and converted to other goods. They are therefore goods in which the manipulations of exchange- such as reciprocity, gift credit, debt, and convertibility- intervene with more strength and clarity. I would venture to say that along with other luxuries, coca is the first commodity in the Andean world. Coca is a commodity because it has exchangeable value and because it circulates widely in the peasant economy. But coca is not just any commodity, it is the one with the most "liquidity." Coca functions in the peasant economy as a "quasi coin" and competes with national currencies. It is a "quasi coin" because it is capable of fulfilling all the functions of real coinage, such as being a medium of exchange, a standard of value, a means of deferred payment and a way to accumulate wealth.(11)

Roderick Burchard has shown in a study how coca can be bartered with just about all the products that circulate in the peasant economy. The interesting aspect is that the exchange rates between coca and various commodities are different from their monetary terms of exchange, even though in the peasant society of the Andes all goods can also be exchanged for money. In one example, Burchard shows how it is possible to convert one sack of potatoes into eight using coca as the medium of exchange. The

chain begins in the highlands with three sacks of potatoes. One sack is sold to pay for the bus fare to the lowland tropical region where coca is grown. In the jungle, one sack of potatoes is bartered for 20 lbs. of coca. Up in the highlands again, coca can be converted back to potatoes at a rate of three lbs. for one sack. Discounting the expenses incurred, one can accumulate up to eight sacks of potatoes in this manner.

This barter is possible with a whole range of products. With a judicious manipulation of barter relations, it is possible to reap sizable profits, be it in accumulated goods, food, or even labor obligations. In other examples, Burchard shows other mechanisms. A woman with insufficient land borrows some coca and distributes it amongst her neighbors during planting time (the time of greatest demand). She does so with the promise to be able to claim the equivalent of the loan, plus interest, in food products during harvest time.(12)

Coca barter is very important in the peasant economy. It unites and creates relationships between diverse regions which produce a very different range of goods, thus creating regional networks of exchange. The exchange rates are favorable to peasants and this way they can avoid the unfavorable contacts with profit-seeking intermediaries of the national marketing system.

SOCIAL ROLES OF COCA

Throughout my studies of peasant economy in the Andes, I have found that reciprocity plays a crucial role.(13) Access to land, to additional labor and to the resources of other families are part of a complex system of reciprocal relationships with other families and with the community. These are carried out in such magnitude that it is possible to talk of an agrarian production system in which reciprocal exchange is dominant. In the context of this article, one must add that there is no reciprocal exchange in which coca distribution, together with some cane alcohol and cigarettes, is not present.

Given the connotations of generosity, pleasure and of confraternity that coca has, it plays a very important role as "lubricant" of reciprocal exchanges, facilitating and propitiating the appropriate climate in which these exchanges take place. The reason is that not only is coca offered, but it is also consumed(14) at that very moment. The ceremonial and often ritual act of ingesting fresh coca leaves in a group, surrounded by friends, creates an atmosphere of fraternity and feelings of solidarity which are indispensable for carrying out reciprocal exchanges. Let me cite some examples:

In the Andes, when one is going to plow a field, one asks the help of relatives, friends and others. These individuals come to your assistance knowing that there will be a return of equal labor in the future. Before the labor task begins, coca, cane alcohol and cigarettes are distributed by the owner of the field. These are received by the helpers with thanks. The coca leaves are not immediately consumed: rather a ceremonial procedure and etiquette is followed. Each person chooses three leaves (called the cocaquintu) from his allotment. The essence of the cocaquintu is offered to local gods, such as the mountain gods (Apu) and Mother Earth (Pachamama), through a small ritual by which one blows on the cocaquintu in different directions. Frequent sharing and exchanges of cocaquintu take place among the participants in this ritual. Then one carefully places a few coca leaves in the mouth. The coca wads get built up by patient and measured ingestion of coca leaves mixed, from time to time, with live lime. Lime is needed to release the alkaloids that give coca its mild and temporary stimulant effect. Lime is extracted from a small gourd with a spatula which has been whetted with saliva so that the lime adheres. Conversation flows and the atmosphere is one of tranquility and sociability. Meanwhile the field owner makes an offering to the gods and the ancestors (who are the real "owners" of the field) by hiding coca, some liquor, cigarettes and candy in a corner of the field and invoking the ancestors to participate in the chacchapakuy. He then prays that the work be easy and concluded without problems.(15)

The agricultural workday is divided into two parts, and each part is further subdivided in two. Each segment is marked by a rest period. In the first rest period the coca

wads are renewed. Food is served in the second and coca is distributed as dessert. In the third break, coca is again consumed. A basic measure of work-time exists in Andean culture, it consisting of the time between chacchapadas or chewing episodes.

In addition to individually organized agricultural work parties, there are also communal (community-wide) work parties, organized by the community leaders. Coca breaks are common in these and it is the community authorities who distribute coca. During these occasions, community affairs also get discussed. In this way coca has an important role in organizing work patterns.

Another example shows the role of coca in the planning and organization of complex political tasks. In traditional Andean communities, frequent meetings take place in order to plan out a series of actions for the future, such as organizing a fiesta, constructing a house, or even deciding on the best strategy to pursue in a land litigation with a neighboring community. Such events last all night. On these occasions, coca is placed on a table covered with a cloth and from there participants help themselves. Throughout the evening, practical ends fuse with social, ceremonial, and ritual behavior. Even while people talk and plan out the actions, coca is used to foretell the outcome of the action itself and to detect if there are any likely pitfalls on the way to success. One of the many methods of divination is through the taste of the coca juices: "sweet", "bitter" and "boring" tastes provide positive, negative or noncommittal oracular answers (respectively) to the questions posed. Other more specialized methods include "reading" the coca leaves as they fall on figurines and symbols that have been placed on a cloth. A leaf that falls with the shiny side up has one kind of meaning, the reverse of the leaf another. The patterning and shapes of the leaves scattered amongst the symbols also offer avenues for interpretation. Reverse rituals of witchcraft involve the same procedures but utilize the worst coca, the crumpled and broken grounds which are to be found at the bottom of every person's coca bag.(16) In this way a sacred atmosphere is created which produces group cohesion and which also seals the pact of collaboration. In these meetings, coca plays a crucial role since coca consumption sharpens the senses, permits concentration and

creates, when consumed with care, an internal peace and tranquility that are indispensable for this kind of intellectual work. Alcohol is less evident because in these circumstances it befuddles the mind and produces drunkenness and conflict.

Let us examine our third and last example. Before battles with members of rival communities are to take place, abundant coca is distributed and then consumed in all-night sessions. In these, the periods between renewal of the wads is shortened in order to enhance the stimulant effect of the alkaloids and to build up courage in order to succeed in the coming battle.(17) The nocturnal vigil creates the necessary solidarity within the group and enhances the nervous tension which is transmitted to other participants.

Thus, it is not surprising to hear Indians say that coca gives them energy, wisdom and courage. Contrast these qualities with the mestizo-propagated, negative images of the coca chewing Indian. One is that he is "solitary and taciturn." This stereotype is negated by the fact that coca is almost never consumed while alone in the Andes but in groups. Coca's context is one of prescribed courtesies, etiquette and good manners, all of which serve to socially regulate its use.(18) Another mestizo myth is that coca "stupefies" the Indians.(19) This is untrue because, as we have seen, coca is utilized precisely in those moments when there is a need for clarity of thought and incisive analysis. Ironically and hypocritically, when Indians succeed in invading mestizo land, they are suddenly accused of being "crafty." A final, incorrectly ascribed attribute of coca use is that it creates "apathy."(20) If apathy were the attitude, the Indians would not have been able to survive as an integral component culture in the Andes in the face of almost five centuries of exploitation and cultural domination. Andean culture has endured because of the fierce will of its native people to maintain it alive. In order to do this they have created conditions of internal solidarity, group integration, and feelings of belonging. In this effort, coca has been wisely and judiciously used.

If it is necessary to choose among stereotypes, I prefer those that come from the people who speak with the voice of direct experience with coca and who underscore that coca use gives them strength, wisdom and courage. What

remains to be established is whether this power comes from the alkaloids in the coca leaf, or, as I believe, more from the solidarity, shared experience and esprit de corps generated in sessions in which chacchapadas take place.

In assessing coca use in the Andes, I believe that we have let ourselves be too influenced by the American-European experience with the lone and furtive drug taker who, hiding in his garret, ingests cocaine in uncontrolled amounts and abandons himself to hallucinations. In the Andes, the mild coca leaf is not used this way. Instead, as we have seen, it is used collectively and ceremoniously in specific contexts and amounts and in prescribed customary and moral ways. Its use is culturally sanctioned and supervised.

ACCESS TO COCA AND ETHNIC DOMINATION

I have shown not only that coca use is well integrated into Andean communal life, but also that its use actively generates this integration. There is hardly an important event in the life of individuals and families, neighborhoods and barrios, which is not ceremonially marked by the use of coca. And thus integrated, surrounded by formalities and controlled by communal forces, it is less likely that abuse (in the sense that its consumption could cause harmful effects in the health of individuals) of coca will occur. This argument is identical to the one we commonly accept for alcohol, that in well-integrated individuals and communities alcohol abuse is unlikely to occur.

But there are undeniably circumstances in which coca is abused. These are associated with communal disintegration, with feelings of social alienation, and with the manipulative and exploitative use of coca by hacendados (owners of large landholdings), merchants, and mine owners.

Hacendados, mine owners and merchants have always generously distributed coca (perhaps it is the only thing with which they were ever generous), thereby creating monopolistic channels to coca access in exchange for unpaid work obligations or ridiculously low wages.(21) It is in response to this situation that the Indigenista movement has

pronounced itself as an anti-coca lobby: because coca has been used in ways similar to soma in Aldous Huxley's famous Brave New World.(22) Coca has been used to keep Indian workers quiet and submissive, and it has been used to shirk paying proper wages. Today coca continues to be used by unscrupulous merchants to develop debt obligations that create a captive clientele.

Thus, there are two important dimensions to take into account. First, the act of distribution of coca confers power over the users (and this goes back to pre-Spanish times). Given the social importance of coca, users frequently fall into the hands of those who distribute the leaf. In exchange, they give services, work extra hours, sell cheaply and buy dear. As in everything else, the Indian has been exploited: in this case, for access to coca. But it must be remembered that this exploitation is not only limited to the exploitation of a physical need, like a supposed "drug" addiction, but more simply that this is an exploitation based on the exercise of monopoly power over scarce goods. The Indian has been exploited in the same way for access to land, to irrigation water, to pastures, to intermediation services at courts of justice, to church sacraments and in many more ways. Coca distribution lends itself to exploitation, as one of many means to do so, in a vast system of general domination that is characteristic of colonial and neo-colonial situations of exploitation.(23)

The second point that needs emphasis is that a rootless individual, torn away from his community and his own solidarity group that sustains him, suffering in a mine or on a plantation, alienated from his home environment and facing strange surroundings, is likely to abuse coca consumption in the same way that a European in similar circumstances is likely to abuse alcohol. But, again, the crucial factor here is the rootlessness and disintegration, the erosion of communal and solidarity ties that will explain the abuse of coca; but that is not an "addiction," as has been argued all too frequently.

On the other hand, it is worth mentioning that the very act of using coca is a clear signal which immediately identifies a person as Indian and thus the object of discrimination by urban and rural mestizo elites. The revulsion that the habit provokes in the latter group spills

over onto the person,and the Indian is treated as a contaminating, filthy individual. Coca use thus also functions as a discriminatory stigma(24) similar to skin color among Afro-Americans of our continent. A coca-using Indian is immediately excluded from a series of social contexts and situations, "put in his place," treated either condescendingly or in a brusque manner, provoking- in the Indian's case- a defensive reaction.

Thus, Oscar Nuñez del Prado speaks of the double behavior of the Indians, depending on with whom the Indian is interacting:

> With mestizos he is suspicious, silent, withdrawn, and nearly inaccessible; he offers a passive and systematic resistance. He is humble, fearful, and inattentive; reticent and evasive in his answers, indecisive in his attitudes. He suppresses and hides his emotions and rarely reveals his disagreement even when he finds himself in fundamental opposition. He is obsequious at times, but this attitude implies that he wants something very specific, that he expects almost an immediate reward. With other natives he is open, communicative, fond of practical jokes, he makes a display of his industry and is ready and willing to cooperate; he shows his feelings and states his opinions without reserve. He is fond of fiestas and enjoys himself in them. When he is drunk he is impulsive and courageous in a fight; he bears grudges, is vengeful, astute and often mocking. He is sober and moderate in his sex life, frugal in eating and tranquil in daily affairs.(25)

It is obvious that this reaction arises from the exploitative and abusive context of interactions between Indians and mestizos and, most emphatically, not from the effects of coca use. It must be remembered that vis-a-vis an outside observer, the Indians are going to react with even more suspicion than they do with local mestizos. No wonder these character traits have been enshrined into the literature, and how convenient it is to ascribe them to the generalized effect of a drug. Given these conditions, paradoxical situations tend to occur which can be explained by the discriminatory effect that is implicit in coca use.

On the one hand, there is self-deprecation, acutely observed by Nuñez del Prado:

> In all three countries (Peru, Bolivia, Ecuador) contempt for everything Indian is habitual. No one wants to belong to this class, and it is very nearly an insult to suggest to a mestizo that he has an Indian relative; the Indian himself, when he has passed to the cholo social class, wishes to wipe out his Indian connections and cover them up as much as possible because he knows that society condemns the Indian to an inferior position and that even his legal rights are obstructed. He becomes ashamed of his language and even abuses his relatives who maintain their Indian status.(26) (Regarding coca use, Nuñez del Prado states:) "If he chews coca, he tries to hide this fact."(27)

On the other hand, since coca use is a stigma, those who do use it openly and in defiance of the discrimination it provides are also affirming amongst themselves ties of brotherhood and solidarity against the mestizo world that is the discriminator. The circle is thus closed again. The act of hallmay is a defiant act against the outside world and, as we saw above, also integrates into a cohesive group those who share it. Those who do not use coca exclude and are excluded at the same time. Hence my conclusion is that coca use is a powerful symbol of social identity that clearly separates those who are with the Indians and those who are not. Hence too, the frustration and feelings of impotence the dominant classes feel when they confront coca use, since they acutely see that its use acts as one of the major barriers against the capture of the Indian's imagination. And that is why we have such violent attacks on coca use and such exaggerated claims about the supposed harmful effects that its use supposedly causes among the Indian populations.(28) Attacks on coca use thus constitute an attempt to undermine the very basis of Andean culture and the internal solidarity of an oppressed group. These negative campaigns are an attempt to break through the barricades in the defense of the so called "Peru profundo"(29) in the hope that coca and the Indians will disappear and that the floodgates for progress and massive Westernization will be opened.

In this way the debate (for or against) over coca use has acquired surrealistic dimensions. Both the proponents of coca's continued use and the abolitionists see themselves in the same camp, for both are would-be defenders and protectors of the Indians against external aggression by mestizo and white oppression.

The abolitionists find themselves in the situation of having to "save" the Indians from aspects of their own culture (such as coca use). The obligation to "save" the Indian implies making him less of an Indian in that very same process of salvation. The abolitionist position of the ambiguous Indigenista(30) movement arose out of these sentiments. As a movement, the Indigenistas proposed to upgrade the value of the Indians and their image in the country, to integrate them into the mainstream of national life, but only as individuals, not as an integral culture. That is why the Indigenistas insisted that Indians get rid of the stigmas that cause them to be the objects of discrimination: that they abandon coca use, the Quechua language, and by implication, all other aspects of Andean culture in its essence, attitudes and details. Properly shorn of their own culture they would integrate into Western culture. The Indigenista movement opted for individual assimilation through acculturation to the dominant (but numerical minority) culture of the nation-state.

In affirming the Indian's right to use coca, I defend the right of Indians not to have to be integrated into the dominant culture individually as a pre-condition of non-discrimination. I defend the right of Andean culture to survive in its integrity. And my utopian vision includes a kind of cultural pluralism of mutual respect between all cultures. Until the conditions that would permit such pluralist integration are forged, my perspective implies that I must continue with the defense of Andean cultural patterns. I also contend that inter-ethnic strife is necessary for the survival of Andean culture until such a day when conditions of equality in power relations and the control of productive resources have been achieved. Under those conditions, coca use will again be thoroughly "domesticated"(31) and abuse of coca use will correspondingly diminish.

In assuming this position, the defenders of the right to use coca occasionally and paradoxically find that they are in the same camp with those who distribute coca, exploit the Indians, encourage its indiscriminate use and inculcate its use outside the social controls that limit and channel its use. Even worse, defenders may be lumped with those involved in the narcotics trade, since they appear to provide a convenient ideological base for these criminals to justify themselves. Obviously, it is necessary to combat those who, because they want to profit from coca or cocaine distribution, are propitiating an indiscriminate use of the leaf, or encouraging the use of a recognized world menace-cocaine.

COCA SUBSTITUTION

Today we are facing a situation where it is likely that, because of external pressures, there will be attempts to substitute coca in the Andes.(32) The pertinent questions then are: What can substitute coca? What effect would substitution have on the legitimate users?

In order to attempt answers, it is necessary to question in which of its multiple functions one is thinking of substitution? If coca leaf is (erroneously) considered a "drug" then the solution to its substitution seems to be relatively simple. Pharmaceutical companies could market a product, such as a mixture of chewing gum with caffeine and/or aspirin, which would reproduce the slight pharmacological effects that coca has on its users and would give the necessary oral gratification. But could this measure also substitute all the other functions of coca use?

I believe that I have demonstrated in this article that the perception of coca as a "drug" is a European short-sighted vision of the problem, and as such, ignores a whole series of issues more important than its slight pharmacological effects on users. In the first place, given the characterization of coca as a luxury good within the scale of consumption items of its users, a substitute for coca would have to be another good in the same category and which could also perform the functions of a token of generosity and hospitality. This good would probably

become alcohol(33) - either cheap cane alcohol or expensive beer - whose consumption in Peru is on the rise. Encouraging the substitution of alcohol for coca would be, in my opinion, a reprehensible act of social irresponsibility that has ample and unfortunate precedents in the actions of European settlers among Indian populations in the continent.

In the second place, one must ask, what would substitute for the economic functions of coca? In today's context it will probably be national currency. But the effect of this substitution would be like a drastic devaluation for the peasant economy. The exchange rates would give to equalize upwards to currency exchange rates. In addition, the multiple trade routes that peasants have created would collapse, and thus another consequence would be a greater degree of regional disarticulation. At the same time, the expansion of the national currency marketing network is not always to the peasant's advantage given the system of advances, the manipulation of prices, the systematic cheating in weights and measures, and the high interest charges that are all too well known to merit further elaboration. It is precisely because these disadvantages exist that the peasants have built the alternative of barter networks as a defense mechanism in which coca plays a very important role. It is probably true that barter networks could continue to exist even without coca, but a great deal of flexibility and efficiency would be lost with the disappearance of this quasi currency that facilitates exchange.

As far as the social functions of coca as a mechanism of social integration and solidarity, coca use is not substitutable with anything because of the mystic and mythic significance that coca has. This symbolic realm is not replaceable by any "functional equivalent." A symbol with profound and important significance and millennial, deep-seated traditional roots which have been transmitted from generation to generation would be wrenched away. Also lost would be a unique non-Western way to value and enjoy human relationships. The rich vein of cultural content which is involved in coca use would also disappear and, with it, the sense of leading a contemplative and philosophical way of life which is implicit amongst those who use the sacred leaf. To deny, despise, and denigrate the social roles of coca use is an act of ethnocide,

deculturation, and disarticulation which only Western man- in his infinite haughtiness - has perpetrated repeatedly throughout colonial history on defenseless cultures of the Third World. In Japan, the daily use of tea, and its ceremonial aspect, expresses the essence and quintessence of Japanese cultural values, and it has not yet occurred to anyone to forbid the use of tea, or to substitute the tea ceremony because in another country certain aspects of tea production and consumption (such as caffeine addiction) are regarded as harmful. These examples can be multiplied to include wine for Ancient Greek and Roman culture and to its French and Italian successors, to betel nut in India, to Jat in Yemen, and the to use of tobacco amongst North American Indians.

In conclusion, Andean culture has contributed to the Western world a whole series of useful plants, such as potatoes, quinoa, mashua, oca and olluco, cotton, aji, tara, quinine and coca. In some cases, as with the potato, cotton and quinine, the West knew how to take advantage and to benefit from them. With others, such as mashua, oca and olluco, it has ignored their potential. But in the case of coca, it is evident that it has been abused, not because intrinsically it is a harmful thing (to the contrary, it was the original, beneficial ingredient of Coca-Cola), but because it has been misused by others outside its native context. Concentrated by these others into a dangerous powder, divorced from its cultural context and the etiquette of its use, it has become a menace. One has to question whether the vengeful destruction of coca fields would not also bring far-reaching and profoundly detrimental consequences for Andean peoples. As we have seen, coca, within its cultural context, is a valuable resource. Who will pay the consequences when this resource too is lost, as were many others before it?

NOTES

*This article is a revised, translated version of an earlier work that appeared in America Indigena 1978, XXXCII(4):849-866. The revisions include updated notes.

1. See Grinspoon & Bakalar Cocaine: a Drug and its Social Evolution, Basic Books, New York, 1976, pp. 87-93.

2. The debate about the health effects of coca chewing on the individual, though old and venerable, has not had the complete attention of responsible researchers that it deserves. See Grinspoon and Bakalar op cit. for a useful summary. It certainly does not justify members of the medical profession to make shrill judgments about the supposed "negative" or "noxious" effects of coca chewing, such as Doctor Fortunato Carranza Sanchez, who argues that coca mastication produces "A disorientation towards the present and a moral anesthesia towards the future" (La Prensa, Lima, November 11, 1977).

3. See Lanning Peru Before the Incas, Prentice Hall, N.J. 1977 p. 77, which shows that coca use (accompanied by lime carefully stored in gourds with fine bone spatulas for its use with coca) dates from the Preceramic VI (2,500 to 1,800 BC). See also Timothy Plowman 1986, "Coca chewing and the Botanical Origins of Coca (Erythroxylum SPP.) in South America," in Deborah Pacini and Christine Franquemont eds. Coca and Cocaine: Effects on People and Policy in Latin America, Cultural Survival Report no. 23; Cultural Survival Inc. and Latin American Studies Program, Cornell University, Boston; and Timothy Plowman 1984 "The Ethnobotany of Coca (Erythroxylum spp.. Erythroxylacae) Advances in Economic Botany. 1:62-111 for a comprehensive review of the botanical aspects of this plant.

4. See Joachim Gantzer, Hartmut Kasischke & Ricardo Losno: Der Cocagebrauch bei den Andenindianern in Peru (1977; pp. 66), which underlines the tendency to blame coca use for the

miserable material conditions of the Indians today. In Peru a classic example includes Carlos Ricketts: "El Cocaismo en el Peru (America Indigena XII (4), pp. 310-322; and "La masticacion de las hojas de coca en el Peru", America Indigena XVI (2), pp. 113-126.

5. These "spheres of exchange" are described in R.F. Salisbury's From Stone to Steel: Economic consequences of technological change in New Guinea, Melbourne University Press, 1962, and are further analyzed by Paul Bohannan in "The Impact of Money on an African Subsistence Economy," The Journal of Economic History, (XIX) 4: 491-503, 1959.

6. Marshall Sahlins, when he distinguishes between generalized, balanced and negative reciprocity, shows how necessities circulate according to the norms of generalized reciprocity, while those goods classified as luxuries circulate according to ideas of generalized reciprocity. Sahlins, Stone Age Economics, Chapter 5, Aldine-Atherton, Chicago, 1972.

7. It is necessary to point out that in any society, no matter how simple, there is a category of luxury goods, and it makes sense to talk about the need for luxuries as universal.

8. For example, C. Gutierrez Noriega asserts that people use coca because they do not eat well, and that they do not eat well because they use coca. "El cocaismo y la alimentación en el Perú," Anales de la Facultad de Medicina No. 31, pp. 73, Lima 1948. Though it is true that malnutrition exists in the Andes, this is due to the lack of food and the proper means to produce and distribute it.

9. See J.V. Murra "Cloth and its functions in the Inca State," American Anthropologist, 64 (4) pp. 710-718.

10. In Murra's works one can see that the common man had access to coca through its distribution by their headmen or curacas who had obtained it from their respective "archipielagos" where people were sent to cultivate, harvest and transport it to the populated areas. In each of the five cases of "vertical control" which are analyzed by Murra, coca production, bulking and distribution are present in different levels of complexity and scale. Murra, "El Control Vertical de un Maximo de Pisos Ecológicos en la Economia de las Sociedades Andinas," in Formaciones Economicas y Politicas en el Mundo Andino, Lima, IEP, 1975, pp. 59-116.

11. A peasant expresses this opinion: "With coca there is no lack of anything. Coca brings food into the house. With coca everything is available," cited in R. Burchard, "La Coca y Trueque de Alimentos" in G. Alberti & E. Mayer eds., Reciprocidad e Intercambio en los Andes, IEP, Lima, 1974, p. 251.

12. R. Burchard, "La Coca y Trueque de Alimentos" in G. Alberti & E. Mayer eds., Reciprocidad e Intercambio en los Andes, IEP, Lima, 1974, p. 209-251.

13. Enrique Mayer, "Un carnero por un saco de papas: Aspectos del trueque en la zona de Chaupiwaranga, Pasco" in Actas y Memorias del XXXIX Congreso Internacional de Americanistas, Lima 1970, Vol. 3; "Las reglas del juego en la reciprocidad Andina" (pp. 37-65); with G. Alberti, "Reciprocidad Andina: Ayer y Hoy" (pp. 13-36), with C. Zamalloa "Reciprocidad en las relaciones de produccion" (pp. 77-85) in G. Alberti & E. Mayer eds., Reciprocidad e Intercambio en los Andes Peruanos op cit. 1974, and Enrique Mayer, Reciprocity, Self Sufficiency and Market Relations in a contemporary community in the Central Andes of Peru, Latin American Studies Program Dissertation Series No. 72, Cornell University, Ithaca, NY 1974.

14. To "chew coca" (actually a misnomer) has several Quechua terms: aculli, chacchay, hallmay.

15. See Catherine Allen 1981, "To be Quechua: The Symbolism of coca chewing in highland Peru," American Ethnologist 8(1): 157-171; and Sergio Quijada Jara "Cantos a la Coca" in Runa 4, p. 7, in which coca is described as "the nexus and effective vehicle to weave the web of sociability and fraternity amongst paisanos" (translated by E. Mayer).

16. See Bolton "To kill a thief: A Kallawalla Sorcery Session in the Lake Titicaca Region of Peru" in Anthropos 69: 191-215.

17. See Enrique Mayer "Reglas del Juego ...." op. cit., pp. 56-57.

18. See Allen, op. cit., 1981, who has a whole section entitled, "The right way to chew Coca."

19. C. Gutierrez Noriega & V. Zapata Ortiz, "La inteligencia y la personalidad en los habituados a la coca" in Revista Peruana de Neuropsiquiatria, 1950, no. 13, pp. 22-60.

20. Example: "A nation of addicts, undernourished and apathetic, was easy prey for the ambitious and well armed conquistadores," R.E. Wright St. Clair "Poison or medicine?" New Zealand Medical Journal, no. 71, 1970, pp. 224. In contrast, here is a chronicle of a more realistic action: "In the haciendas of Chinche and Huarautambo, where the exploitation of the peasants had reached acute extremes, agitation and discontent was endemically characterized by violence. In the same way the communities of Michivilca, Yanahuanca, Quilacocha acted with more violence against their aggressors in revenge of abuses committed against them over long years," Wilfredo Kapsoli Movimientos Campesinos en Cerro de Pasco 1880-1913. Lima 1972, pp. 123-24. See also the novels of Manuel Scorza Redoble por Rancas, Plaza & Jones, Barcelona 1983, and Garabombo el Invisible, Monte Avila editores, Caracas 1977 and others by him, non-fictional accounts of the same region and the same event, which show the

dramatic ways in which Indians have fought for decades to recuperate lands from which they were dispossessed by landowners.

21. "In some regions hacendados provide the peon with a ration of coca (one ounce) for each day of work," Mario Vasquez, Hacienda, Peonaje y Servidumbre en los Andes, Editorial Estudios Andinos, Lima, 1961. An older example comes from the complaint of the parcialidad of Anansaya of the Lupaqa Indians in the Altiplano of Puno in 1567. The Cacique, don Martin Cari declared that "in this village there are thirty Spaniards more or less, who trade and engage in farming and selling coca and wine to the Indians which is not to their benefit because the Spaniards give them baskets of coca and wine on credit and other things like expensive maize and chuno and afterwards they take for this sheep, llamas and silver and if the Indians do not have the means to pay, they put them in jail..." in Visita hecha a la provincia de Chucuito por Garci Diez de San Miquel en el ano 1567, Casa de la Cultura del Peru, 1964, p. 26. The Spanish and republican Coca trade has been studied by Magnus Morner 1985, The Andean Past, pp. 47-8 and Ruggiero Romano 1986, "Coca Buena, coca mala?" in La Coca Andina: Vision de una Planta Satanizada, Instituto Indigenista Inter-Americano y Juan Boldo i Clement Editores, Mexico.

22. Huxley Aldous. Brave New World, Harper & Row, New York 1946.

23. See Julio Cotler, "La mechanica de dominacion interna y el cambio social en la sociedad rural" in Peru Problema No. 1. IEP Lima, 1968.

24. Goffman, Erving. Stigma, Prentice-Hall, Englewood Cliffs, NJ.

25. Oscar Nunez del Prado, "Aspects of Andean Native Life," in Dwight B. Heath and R.N. Adams eds. Contemporary Cultures and Societies of Latin America. Random House, NY 1965, p. 196.

26. Oscar Nunez del Prado, op. cit., p. 105.

27. Oscar Nunez del Prado, Kuyo Chico: Applied Anthropology in an Indian Community, University of Chicago Press, Chicago, 1973, p. 12.

28. Because it is a symbol of cultural resistance coca use is vehemently attacked by all non-Indians, while the biochemical reality is really as innocuous as tea, coffee or tobacco. Lester Grinspoon and James Bakalar, experts on this issue, say that "This is an exceptionally clear example of a situation in which the pharmacological effects of a drug are less important than the symbolism that surrounds the habit of using it," Cocaine: a drug and its social evolution, op. cit., p. 218.

29. A phrase coined by Peru's eminent historian Jorge Basadre and much quoted today to indicate the hidden but profound Andean cultural elements that pervade the nation. Presumably, it contrasts with some imagery of superficial (legal) Peru as a poor attempt at trying to be a carbon copy of a European nation, a tendency against which he fought. Basadre, Jorge. La Multitud, la Ciudad y el Campo en la Historia del Peru, 1947, segunda Edicion, Editorial Huascaran, Lima.

30. Indigenismo was an intellectual movement in the twenties and thirties that fiercely debated the "role" of the Indian in national society. It had many facets and developments. Notable in it, apart from a pseudo-scientific assertion of Indian virtues against centuries of exploitation, were regional movements against Lima domination, the organization of associations that began to defend Indian land and labor complaints, and the establishment of linkages with labor movements. Indigenismo is also closely associated with the establishment of socialist and communist parties in Peru, most notably Jose Carlos Mariategui and his intellectual circle around the Journal Amauta, and a celebrated debate with Luis Alberto Sanchez of the APRA party where the beginnings of the ideological separation between the two parties can be seen.

31. Grinspoon and Bakalar (op. cit. 1976) describe that one way of dealing with drugs is to "domesticate" them in order "to create a social situation in which they

[drugs] can be used in a controlled fashion and with moderation," (p. 233). Coca use in the Andes is a clear example of such a "domestication."

32. Funded by US AID there are attempts to reduce the area of cultivation of coca in the producing areas aimed at reducing supply for the narcotics trade. These programs have been met with opposition, resistance, and several agents of the program have been shot. To date, they have had little effect in reducing the supply of cocaine for the narcotics trade. See on this David L. Strug, "The Foreign Politics of Cocaine: Comments on a plan to eradicate the coca leaf in Peru," in Deborah Pacini and Christine Franquemont eds. Coca and Cocaine: Effects on People and Policy in Latin America, Cultural Survival Report No. 23, Boston, 1986. Current short term policies are not involved in reducing coca consumption in the traditional areas, although the higher prices and insatiable demand of cocaine merchants have increased the price to coca available in the traditional consumption areas and there have been periods of shortages. Nevertheless, Peru is a signatory nation of a 1950 UN recommendation to control the expansion of coca production and to carry out a campaign that would gradually reduce coca consumption in the traditional areas in twenty-five years. The deadline was 1975, though there have been few effects on reducing consumption. For a study of consumption patterns in Bolivia, see William Carter and Mauricio Mamani Patrones "De uso de coca en Bolivia," in America Indigena Vol. XXXVIII, No. 4, Mexico, 1978.

33. It would be difficult to imagine the whole game of reciprocity, so important in Andean culture, using chewing gum as the token and expression of the social relationships that links people together. Carter and Mamani, cited above, in a survey in Bolivia asked the question, and the overwhelming answer is that nothing would substitute for coca (74%), 11% said it could be food, and another 11% alcoholic beverages, and 17% reported that candy could do the job.

COCA: ITS HISTORY AND CONTEMPORARY PARALLELS

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INTRODUCTION

The historical analysis that follows illustrates that the current cocaine crisis has been preceded by two periods of the drug's intense popularity. In the first, the Incas in South America defined the coca plant which was exclusively used by the royalty until after the Spanish Conquest. During this first period, use of coca for chewing was more for cultural and economic purposes than drug abuse, as it is known today. During the second period, a wonder-drug mythology developed in the United States and Europe. Coca extracts were used to relieve all types of distress symptoms. The development of control measures which evolved from this period is also reviewed. The last section examines the current crisis approach to an old problem.

A. The Inca: The Divine Plant Period

1. The Incan Empire

The origins of the coca plant are unknown, but archeological findings, such as ceramics and skulls found in burial sites, evidence the extensive use that the Incas had for the plant.

In less than a century (1438-1532) the Incas conquered some of the Indian tribes of the areas that are today known as Ecuador, Peru, Bolivia, and Chile. Depending on the views of the examiner, the Inca empire has been described as a socialist, democratic, theocratic, or despotic empire (Bonifaz, 1965; Finot, 1954; Klein, 1982; Plasket and Quillen, 1985). Besides being recognized as a powerful military group, the Inca civilization is also known as the first group to use the coca plant extensively. There is no straightforward explanation of how the practice of chewing coca leaves started. The practice is often associated with the Inca myths. Other explanations account for the effects of the plant's chemical agents, along with the geographical composition of the territory and the socio-economic and cultural role of the plant (Hamilton, 1979; Grinspoon and Bakalar, 1985; Kennedy, 1985; Paredes, 1963; Phillips and Wynne, 1980; Plasket and Quillen, 1985; Valcarcel, 1964).

One of these legends blends both mythology and the physiological effects associated with the plant's chemical agents. The legend tells how the god of thunder and storms destroyed all vegetation, ways of communication and villages in a fit of anger, leaving the Indians homeless and hungry. After walking for days, they found the only surviving plant--the coca plant. After picking and chewing the leaves, the Indians were no longer hungry and exhausted. The plant also made them forget their sorrows and gave them a new strength to rebuild their lives (see Grinspoon and Bakalar, 1985, pp. 1-16 and Kennedy, 1985, pp. 20-23 for other myths).

The Incas made coca the center of their religious and socio-economic organization. Its sacred status limited its use to the Inca elite. Among those privileged enough to use the plant were priests who chewed the leaves before divination and rituals, court orators, and state messengers who chewed the leaves during their long trips across the empire. Coca was extensively used in medicine. Not knowing the etiology of diseases, diagnosis usually took the form of a spell and the leaves were used to diagnose the origins of the diseases. Therapeutically, coca extracts were the leading remedy for all ailments. Coca was used as a stimulant and local anesthetic and the leaves were used to preserve surplus food between harvests (Kennedy, 1985;

Paredes, 1963; Plasket and Quillen, 1985; Salmon, 1979; Stein, 1961; Stern, 1982; Valcarcel, 1964).

Recent historical accounts suggest that the Incas used the coca plant for control purposes. Kennedy (1980) suggests that economic control took the form of placing restrictions on the use of the coca leaves because the Incas monopolized the trade of the plant that was desired by a large percentage of the people they conquered. In addition, placing restrictions on distribution and areas of cultivation of the plant favored the Inca efforts to dissolve the ethnic identity of the tribes they conquered and facilitated their efforts to unify their empire under a centralized bureaucratic state. However, Kennedy's thesis focuses on political and economic means of control. Other aspects of social control are left out -- for example, an obviously segregated class bias. The Incas were a socially stratified civilization. The elite had the privilege of having a constant availability of leaves. The lower classes were not allowed the pleasures of the "gift of the gods," except for curative purposes. Social control, then, was linked to social status. Restricting areas of cultivation and distribution not only served economic and political interests but also preserved the social class structure of the group.

2. The Spanish Conquest and Europe

The discovery of the New World brought about the dissolution of the Inca empire, and new uses for the "divine plant" were found. Initially, the Incas' Spanish conquerors denounced the habit of coca chewing, Christian missionaries linked its use with idolatry, and its physiological effects were associated with demoniacal possession. On these grounds, the King of Spain signed a royal proclamation banning the use of coca (Kennedy, 1985; Phillips and Wynne, 1985; Plasket and Quillen, 1985); because of this the plant's popularity diminished.

Eventually, however, the colonization of the New World translated into the enrichment of the Spanish coffers. The territory was rich not only in gold and silver, but in agricultural products as well. In need of laborers, the Conquistadors came to realize what the Incas had known for centuries: coca chewing alleviated hunger and enhanced a person's capacity to work with a minimum of fatigue. At

this point any hope for prohibition vanished and the practice of coca chewing spread. Coca chewing was no longer limited to the Inca elite. Now all strata of the population, especially the laboring class, had access to the coca plant and its effects.

The Spaniards introduced new institutions and initiated new rules that disintegrated the Incas' social and political organization. The introduction of a new faith--Christianity--as well as forced labor in the mines and a monetary tax structure forced the Incas' integration into the Spanish market economy (Kennedy, 1985; Klein, 1982; Stern, 1982; Juan and De Ulloa, 1918). The Spanish kept the Incas' state monopoly on the coca plant intact and began to issue free coca rations to the mine workers (Kennedy, 1985; Klein, 1982). The coca plant retained its value as a social control strategy. Control might have changed hands, but it accomplished the same ends. The Conquistadors basically integrated the Incas into their social system by doing exactly what the Incas had done to their conquered enemies--they forced the Incas to dismantle their own ethnic social order, and incorporated the Indians into the foreign social order that the Conquistadors brought with them from Spain. Making the coca plant more available to the masses was probably an encouraging factor--especially to the lower classes--in this direction.

Coca leaves were among the bounty the Spaniards took to Europe after 1532. The leaves at first went unnoticed among the gold, silver and necessary agricultural products that were returned from the New World. Chronicles and travelers praised the qualities of the plant, but it remained an obscure substance for hundreds of years. It is believed that this happened because the leaves became inert during shipping on the long ocean journey to Spain. However, it is possible that the Europeans ignored the plant because they had their own traditional herbal cures of ailments. Also the Spanish Inquisition had associated the plant's use with an erroneous stereotype of idolatry.

It was not until the nineteenth century that the plant made a lasting effect on Europe. Once the leaf's main active alkaloid--cocaine--was isolated, interest in its use intensified, both for scientific purposes and for pleasure.

Sigmund Freud's work with the drug has had particularly strong and long-lasting effects. It has been suggested that Freud developed psychoanalysis while under the influence of cocaine (Thornton, 1983). Cocaine's euphoric effects helped Freud develop a new conception of the mind and explanations for psychological problems. Cocaine soon earned its reputation as a tonic, analgesic and anesthetic. The body of literature on coca and cocaine expanded between 1870 and 1900. Specifically, cocaine was triumphing as a panacea used by the emerging medical profession. Its promotion and extensive popularity as a wonder drug overcame any negative prejudices that it once carried, as will be described in the next section.

B. The United States: The Wonder Drug Period

1. 1800-1900

The moral principles that either seem to be forgotten or second-nature today were not as dominant during the early history of drug control in the United States. The history of the control of cocaine (as well as other drugs) is intimately linked to the reform or progressive movement that plunged the United States toward industrialization, professionalization, and governmental regulation of the social environment.

During the 1800s narcotics were widely used in the United States. The exact ratio of the population that used drugs is statistically unreliable (Duster, 1970; Taylor, 1969; Terry and Pellens, 1928), but it was recognized that addiction could be found in all social strata. Reports of addiction among physicians, women, and professional and business men, as well as among the rural population, were common (Morgan, 1981, 1974; Musto, 1973; Taylor, 1969; Terry and Pellens, 1928; Walker, 1981, 1974). Duster notes that "there was once a time when anyone could go to his corner druggist and buy grams of morphine or heroin for just a few pennies ... there was no moral stigma attached to such narcotics use" (1970, p. 3).

According to H. W. Morgan (1981), throughout the nineteenth century the United States experimented with the cultivation of opiates in many parts of the country (Arizona,

California, Connecticut, Florida, Georgia, Louisiana, Massachusetts, New Hampshire, Pennsylvania, South Carolina, Tennessee, Vermont, and Virginia), but the monetary outlay for producing American opium made such production prohibitive when its net profits were compared to those of other producing countries, which could provide the drug at a more economical cost.

During this period drug dependence was usually accidental or medically related. Drug dependence had several sources. Among these was unintentional over-medication. The professional medical establishment was newly formed and its need for remedies to relieve the symptoms of unknown diseases could not be overlooked. Generally speaking, doctors' dependence on cocaine-laced medicines reflected the lack of diagnostic and treatment expertise of the period. For example, during the Civil War morphine was heavily used as a pain killer. The perfection of the hypodermic needle not only allowed for the direct injection of morphine into the bloodstream, it also offered an easier and quicker method of relieving pain. However, patients became dependent on morphine. Heroin was tried as a substitute but it also had addictive effects. Coca extracts began to be promoted as a cure for morphine and heroin dependence. Its availability provided an alternative, and supposedly harmless, remedy for treatment of dependence to other drugs. It also relieved the symptoms of unknown diseases.

Patent medicines were another source of drug dependence. The contents of such remedies were not disclosed on the label. Door to door salesmen, mail order catalogs, and pharmacists promoted the easy availability of cocaine-laced substances. Tablets, wine, elixirs, ointments, and throat lozenges containing coca "were in use for varied purposes for a generation or more" (Grinspoon and Bakalar, 1985, p. 24). Advertisements for the products relied on testimonials. Thomas Edison, Pope Leo XIII, the Czar of Russia, Jules Verne, President Ulysses Grant and Emile Zola are among the eminent persons whose testimonials endorsed the virtues of the substance in its wine form (Grinspoon and Bakalar, 1985; Kennedy, 1985).

The extensive use of cocaine was not accompanied by an understanding of its qualities and/or effects on the body.

Prior to 1900 only a small number of journals expressed fears about the dangers of cocaine (King, 1972; Lindesmith, 1965; Terry and Pellens, 1928). Drug tolerance, physical addiction, mental dependence, and withdrawal symptoms were not understood. The fears and dangers associated with continuous use were offset by cocaine's effective relief of the symptoms of disease (Musto, 1973).

By 1896, while the population had increased by only ten percent, cocaine importation had risen forty percent (Musto, 1973). H. W. Morgan (1981) argues that this increase in importation had two long-term social effects. The statistics fortified the idea that narcotic abuse was on the increase; imports made it appear that foreign nations were adversely affecting the United States. However, the nation was not yet ready for regulation. Drugs (cocaine, opium, morphine, heroin, and alcohol) became part of a larger reformist or progressive movement.

The beginnings and character of this movement are mixed with social, economic, health, and professional interests, rather than with legal controls. The movement is also interwoven with moralistic overtones. Generally, white, middle class, rural protestants began a campaign to impose their conception of right and wrong, and their moral self-discipline on the emerging urban, foreign-born working class. The use of cocaine-laced substances (and other drugs, including alcohol) was at first a vice to be overcome by intense self-discipline, a moral social order, and the "American work ethic." However, what worked in the rural environment turned into disillusionment for the industrial society and drug dependence became associated with social disorder, poor work habits, minority groups, immorality and evil. Reformists searched for social integration and the prevention of social ills in the industrial world, but attacks on indiscriminate sale, over-prescription, and self-medicalization were a later development.

As the century progressed patterns of power and authority began to take place. Doctors and the patent-medicine industry were becoming "aware of the adverse public image that indiscriminate sales of habit-forming drugs gave them." Professional interests, health and social issues merged. Medical advances and the discovery of specific disease agents for particular diseases gave the physicians a

sense of professionalism and social status. The medical profession relied less on treating the symptoms of diseases with cocaine-laced substances. Doctors began to treat drug dependence as a disease while realizing that the public was too familiar with substances that required medical supervision. The disease model and the therapies so derived during this period reflect the confidence of the profession's ability to solve both social and personal problems (see Morgan, 1981 and Musto, 1973 for a review of these early therapies). Private sanitariums began to flourish. H.W. Morgan suggests that clinical solutions offered:

> ...a practical cure that satisfied a public opinion now moving toward drug regulation, yet concerned with what to do about addicts. It also relieved the addict of responsibility for his condition and promised him a new life as a normal member of society (1981, p. 85).

However, the medical profession failed to find a long-lasting cure for drug dependence. Physical deterioration, immorality, and social problems began to be associated with drug users and fortified the idea that social control was necessary. Three elements seem to have shaped the beginnings of social control. First, addiction was no longer seen as a disease. The power of the medical establishment was curbed as these experts failed to find a long lasting cure for addiction. Second, the law enforcement establishment began to associate addiction with increasing crime rates, dangerous deviant classes and ethnic minorities. Finally, it was assumed that well-written and restrictive legislation would be the greatest deterrent for drug-related antisocial behavior (Inciardi, 1986; Musto, 1973).

Although early control strategies were minimal, the Criminal Justice System has inherited the philosophies developed during this period, namely harsh penalties for users as well as for distributors.

2. 1906-1920

Although control strategies were minimal, federal legislation lagged behind the state's control of cocaine. In 1887, Oregon became the first state to regulate the drug. Before 1914, forty-five states had some form of legislation

regulating the sale and distribution of cocaine (Bonnie and Whitebread, 1974; Grinspoon and Bakalar, 1985; McLaughlin, 1973).

The first congressional attempt to deal with cocaine-laced medicines (as well as opium) was the Pure Food and Drug Act of 1906 (34 Stat. 768, repealed in 1938). The Act imposed standards of quality, packaging and labeling on foods and drugs. It prohibited interstate commerce of misbranded items and put restrictions on coca leaf imports. The Pure Food and Drug Act did more to protect and start public health standards in consumer items than it did to curtail the use of cocaine. The Act is among the first laws that aimed to protect consumers against false statements about the contents of patent remedies. It aimed not to eliminate self-medication but to make it safer by guaranteeing consumer information and preventing false advertising. It has been suggested that the Act was drafted in this form because Congress had the constitutional power to regulate interstate commerce, but it lacked the power to prohibit any of the states from manufacturing and selling cocaine-laced substances (McLaughlin, 1973). After the act was enacted it was still legal to prescribe, use, and manufacture preparations containing cocaine.

The Act also aided the institutional growth of health-related professions by defining areas of competence. Drug companies (patent medicine industries) had to label their products and only doctors were allowed to diagnose the origin of the diseases to be treated. The difference between drugs taken for pleasure and drugs taken under medical supervision was established. As a result, self-medication of cocaine-laced substances was associated with pleasure. Drug dependence surfaced in epidemic proportions and cocaine became suspect. This association had unpredictable and negative consequences. Anti-cocaine crusades intensified after 1906. It was no longer accepted that consumers were able to medicate themselves (only professionals could competently do this), while correct labeling was not enough to curtail the abuse of cocaine. Cocaine joined the ranks of other drugs such as opium and alcohol and was causally associated with social problems, evil, immorality and deviant behavior.

The race issue merged with the fear of cocaine. Cocaine was associated with blacks, just as opium was previously associated with the Chinese (around 1870) and marijuana would later be with Mexicans (before 1937). The racial-ethnic stereotype has appeared predominantly in the campaigns to make these drugs illegal (Helmer, 1975; King, 1972). These campaigns have concentrated on what have been called the "dangerous classes": the black "coke fiend" that corrupted white women, caused crime, and resisted arrest with violence. "Cocaine ... vividly summarized the growing public tendency to think that drug use was suddenly increasing, emerging into light, ceasing to be something that society could merely disapprove of or isolate" (Morgan, 1981, p. 92). In addition, the addict's social demographics began to change. Bonnie and Whitebread (1970) have suggested that both increased medical knowledge and governmental regulation occurred only when narcotic drugs achieved a degree of street use and addiction that was identified with poor and racially-ethnic minorities. The racial imagery "became part of the larger idea that drug use was backward, pre-modern, [and] unproductive, as these ethnic groups appeared to most Americans" (Morgan, 1981, pp. 93-94).

These negative associations were prevalent in the South. Musto argues that the "fear of the cocanaized black coincided with the peak of lynchings, legal segregation, and voting laws all designed to remove political and social power from him" (1973, p. 7). In 1914, 70% of the crimes were attributed to cocaine users (Musto, 1973). Whether or not blacks abused cocaine more than whites is debatable. It is more probable that blacks were used as scapegoats for this crusade. Historical evidence supports the assumption that whites abused drugs more often than blacks did. It can be hypothesized that the Pure Food and Drug Act began to safeguard public health at a time when white, middle-class females depended on patent medicines laced with cocaine. It can also be speculated that after the Act was passed, this group relied less on patent medicines but more on private doctors to prescribe such medicines. Blacks, on the other hand, lacked the resources to pay for private consultations and prescriptions. In addition, blacks were becoming more visible in urban areas as industrialization expanded their working opportunities. The irony is that if blacks were using cocaine it could have been provided by their white

employers (i.e. steamboat operators), the same group of people who ended up proselytizing the fear of the cocaine-using black.

The end of the governmental laissez-faire attitude came in 1914 when Congress approved the passage of both the Harrison Narcotic Act (38 Stat. 785, 1914, repealed in 1970) and the Narcotic Import and Export Act (38 Stat. 275, 1914, repealed in 1970). At the time both represented the federal government's first attempt to deal with drug abuse. With respect to cocaine, the Narcotic Import and Export Act prohibited cocaine exportation to any country unless that country regulated its own drug imports. Of more significant importance is the Harrison Act. It established the procedures by which those persons registered to deal in narcotics could handle, administrate, and prescribe drugs such as opiates, cocaine and its derivatives. Initially it was adopted as a revenue measure so that the right of Congress to raise taxes could be used as constitutional justification for the law (McLaughlin, 1973). In practical terms its development and enforcement formed the core of the United States federal enforcement apparatus.

Historically, the Harrison Act is taken as a turning point in the development of control policies. However, there is no consensus as to the elements that shaped the legislation. A quotation by Musto best exemplifies the lack of consensus:

> That addiction rose spectacularly between 1915 and 1919--an assumption drawn to justify the repression of addicts after 1919--<u>is not supported by evidence</u>. On the other hand, any contention that this fact was deliberately constructed in order to permit the government to take dramatic action against a minimal threat <u>is not supported by evidence either</u>. [emphasis added].

Whether or not the evidence supports both arguments (Becker, 1963; Dickson, 1973, 1968; Galliher and Walker, 1977; Helmer, 1975; Jeffe, 1976; Morgan, 1978; Norland and Wright, 1984; Wukasch, 1972), two other issues need to be examined. First, congressional debates focused on international treaty obligations. Congress did not debate addiction, nor was the bill intended as a prohibition measure

or as the foundation of any federal enforcement establishment (Morgan, 1981). Second, in practical terms the passage of the Harrison Act resulted in activities and enforcement practices not anticipated by legislators.

Although it is generally accepted that the United States initiated international agreements in 1909 between 1833 and 1905, the United States had signed various agreements with China, Great Britain, France, Russia, and Korea (U.S. Department of Justice, 1972). During this period, opium was a trading commodity in the Far East. Economic interests in the area led to the Opium War of 1840-1842 between China and Great Britain. China was defeated, and the Far East was open to foreign trade. Some authors have suggested that the 1914 legislation was reinforced by the United States' economic interests in the Far East (Brunn, et al., 1975; Morgan, 1981; Musto, 1973; Taylor, 1969; Walker, 1974; 1981). To elaborate, after the Spanish-American War of 1898, the United States became an expansionist nation. The acquisition from Spain of, among others, the Philippine Islands, had several implications. The United States was recognized as a world power. Financially, the United States had vested interests in the extensive Far East commercial market. In addition, the United States inherited the Philippines opium problem.

> The Americans tackled the problem as part of a general effort to make the islands more orderly, productive, and enlightened according to their standards. They also wanted to make them an example of the progressive values the United States thought it represented. They identified opium with crime and waste and saw it as an obstacle to productivity as well as enlightenment (Morgan, 1981, p. 98).

Symbolic values, then, merged with the economic objectives in the area. The economic development of the territory required the regulation of the conduct--opium smoking--thought to hinder that progress. In 1904, the United States abolished the importation of opium to the territory--except for medical purposes--and forbade its use. However, the legislation was ineffective in reducing the illicit opium trade. Other nations were trading in opium which found its way to the Philippine Islands. The United

States soon realized that concerted international action was needed. Eight years after opium was forbidden in the Philippines the First Opium Conference was held in the Hague. At this time the United States lacked any federal legislation on narcotic drugs. The Hague Convention resulted in the adoption of the International Opium Convention of 1912. Basically the Convention translated international cooperation into legal obligations on the part of signatures to the Convention. The development and structure of the international control system has been discussed by a number of authors, among others, Brunn, et al. (1975), Gregg (1974), Lamour and Lamberti (1974), Nanes (1974), McNicholl (1983), Musto (1973), Samuels (1969), Taylor (1969), and Walker (1981, 1974). To summarize, the Narcotic Import and Export Act and the Harrison Act of 1914 were more the result of international compromises and economic interests in the Far East than Congressional desires to control drugs in the United States.

The second issue refers to national enforcement practices. After the Act went into effect, tax collectors (the Bureau of Internal Revenue of the Treasury Department) interpreted the law as a measure to regulate addiction and drug distribution. The law enforcement approach resulted in criminal sanctions against users and dealers, and drug abuse was defined as a criminal act rather than a disease. By 1923 the medical profession had lost all drug control authority to the federal drug control agencies. Doctors were arrested for maintaining the criminal addiction of their patients due to the ambiguities and loopholes written into the Act. For instance, words such as "good faith," "professional practice," and "proper treatment" were not clearly defined by the law. Moreover, these loopholes were often the grounds on which federal enforcement practices rested when the constitutionality of the law and enforcement practices were tested in court (i.e., the Doremus, Webb, Linder and Boyd cases). As a result physicians lost their freedom to prescribe cocaine-related substances, and addicts lacked a legitimate source of drugs and turned to the illicit drug market. There were addicts at all levels of society. However, their conduct was now illegal because of federal enforcement practices, and this fortified the negative image of the drug underworld (Becker, 1963; Duster, 1970; King, 1972; Lindesmith, 1965; Musto,

1973; Walker, 1974). Addicts were now cast out as addiction was reinterpreted to fit the criminal stereotype.

According to Jeffe, the law enforcement approach had long-term effects.

> It made everyone involved in the drug question hesitate to innovate or to take responsibility for any new public departures. Practicing physicians avoided addicts or the study of drug use. Federal researchers feared moving beyond the controls of their bureaucracies. The criminal justice system developed a powerful intolerance for the drug user as well as the drug supplier. And the addict who once might have won some understanding if not approval for his condition was now merely a criminal (1976, p. 255-256).

Since federal statutes were administered as revenue measures, the collection of the tax was assigned to the Treasury Department's Bureau of Internal Revenue. After several reorganizations the administration of federal statutes was shifted to the Justice Department. The patterns of enforcement developed by the Bureau of Narcotics (1930-1968) and its successors have been maintained as the enforcement apparatus supporting and recommending new areas of concern (H. W. Morgan, 1981; Bonnie and Whitebread, 1974; Musto, 1973; Becker, 1963).

For example, in 1919 Congress amended the Harrison Act to place stricter controls on the distribution of cocaine and opium. All taxes were increased and, in addition, a commodity stamp tax was excised on all opium, coca leaves, or their derivatives produced in or imported into the United States. It became illegal to purchase, sell, or dispense any cocaine except in or from the original stamped package (McLaughlin, 1973). In 1922 Congress banned the importation of cocaine and coca leaves, except in the necessary amounts needed for medical and scientific needs. This amendment not only legally defined cocaine as a narcotic (pharmacologically it is a stimulant), but also penalties were increased for those who did use it for legally specified purposes. "Where earlier penalty provisions had been drafted in the alternative--either a fine or imprisonment or both--the 1922 Act imposed a fine or up to five thousands

dollars and imprisonment for up to 10 years" (McLaughlin, 1973, p. 563). From 1914 until the 1960s this law enforcement model faced little opposition.

3. 1930-1960

Cocaine's popularity declined between 1930 and 1960. Cocaine-derived medicines were confined to the established medical profession, while illegal distribution catered to a small percentage of the population for recreational purposes. Cocaine was considered a rare and expensive luxury item, associated with the very rich or with the artistic community (Ashley, 1975; Phillips and Wynne, 1980).

Although the previously described law enforcement approach has been linked to cocaine's decline in popularity and increase in price, other developments seem relevant. For example, new synthetic stimulants were now beginning to be placed on the market. By 1932, amphetamines had become available; these drugs had the same effects as cocaine, but were inexpensive, legal, and had longer-lasting effects. In addition, marijuana began to be a rising concern for law enforcement officials.

By the 1940s cocaine was no longer a topic of national attention. It is said, however, that its use among jazz musicians and the "Bohemians" had never decreased (Kennedy, 1985; Morgan, 1981; Phillips and Wynne, 1980). Since cocaine was no longer a topic of national debate McLaughlin (1973) finds it difficult to explain why Congress chose to increase the criminal sanctions against its use during the 1950s. Several explanations come to mind. It can be suggested that the federal enforcement agencies successfully cemented their views on drug control because the emphasis on controlling cocaine was more through punitive judicial means than by any other strategy. The policy assumption was that severe criminal sanctions would have the effect of reducing both drug abuse and underground trafficking because the risks of punishment were higher. The Boggs Bill of 1951 (65 Stat. 767, repealed in 1970) and the Boggs-Daniel Bill of 1956 (70, Stat. 567, repealed in 1970) exemplify this trend. In addition, the nation was confronting an increase in juvenile delinquency, heroin abuse and recidivism rates. Legal drugs, such as amphetamines and barbiturates, found their way into illicit

channels. Other drugs such as marijuana were moving away from the ghettos and into the suburbs. Finally, opposing interests began to voice their opinions.

> The legal profession, through the American Bar Association, began taking an interest in drug-law enforcement ... the American Medical Association ... appeared almost ready to step in and assert some of its prerogatives. There were whisperings of rebellion in the ranks of the Public Health Service. At one point it even looked as if Congress might take a critical new look. And the hitherto inviolate treasury agency began coming under sporadic fire from enlightened sectors of the press (King, 1972, p. 119).

These factors paved the way for the challenge of the 1960s and afterwards. Marijuana use among the young, white, middle-class population began to increase. Technological advances continued to produce synthetic and psychoactive drugs (i.e., tranquilizers, sedatives, stimulants, hallucinogens, antidepressants) which found their way into illegal channels. The public began to mistrust public policy; first hand experiences with illicit drugs clashed with the government's reports on the effects of such drugs.

> By the dawn of the 1960s, the drug issue was developing a multi-constituency ... the medical profession began to assert its prerogatives in both research and treatment. Some people in the psychology, social work, public health, and sociology disciplines began to devote more energy and broad social viewpoint to the problem ... American society faced a time when drug use and all it represented would come to the center of national life (Morgan, 1981, p. 148).

This decade can be described as one of critique and amelioration. The deviance concept became suspect as traditional explanation were unable to explain drug abuse by the white, young middle class. Instead of seeing the drug issue as a criminal problem, scholars described secondary deviance as a problem caused by the existing criminal sanctions toward drug use and presidential committees questioned existing policy approaches and suggested changes,

such as the need for a reevaluation of national policies and a decriminalization movement.

For the first time since the Progressive Era there was an interest in medical treatment for addicts. Treatment, rehabilitation, and research into the effects of drug use were implemented nationally. As policy strategy these measures were thought of as an alternative to ameliorate the deficiencies of previous approaches (Bellassai and Segal, 1972; Kleeman and Posner, 1971). Legally, addiction was a treatable medical disorder (Robinson vs. California, 1962, 398 USC 913), while socially the modalities hold the promise of rehabilitating addicts into useful, normal social beings. In practice, what emerged from a cooperation between the criminal justice system and treatment orientation was therapeutic control (Lidz and Walker, 1980). A statement by H. W. Morgan captures the cyclical and ironic nature of drug controls as the decade progressed:

> ...the 1960s seem more "humane" and "reformist" in relation to the opiate addict than the 1950s were. But their final results were often ironic repetitions of previous history. The increasing complexity of laws and regulations...reinforced the popular idea that addiction was baffling and contagious (1981, p. 152).

C. The Crisis Period

1. 1970-1980

More experts attribute the reemergence of illicit cocaine traffic to the social environment and the policy decisions made during the 1960s. On the one hand, as the decade progressed the United States was left with a middle class culture that saw no dangers in experimenting with drugs whose sole purpose was to make them feel good. On the other hand, an all-out war against marijuana was waged along the Mexican-American border, and the legal production of amphetamines and other abused sedatives was reduced at the national level.

In addition, Turkey banned the cultivation of its opium poppy harvest and the French law enforcement efforts

displaced the illegal heroin laboratories in Marseilles (Brecher, 1972; Inciardi, 1986; Murphy and Steele, 1973; Phillips and Wynne, 1980; Plasket and Quillen, 1985). Although it should have been apparent that these events would have resulted in a change in the illicit drug scene, the United States was unprepared for the rapid growth of the illicit cocaine trade that emerged during the 1970s and 1980s.

Although the 1970s could be summarized as a decade of drug toleration, it paved the way for the intolerance that followed. Some environmental events seem relevant.

A culture of "narcissism" emerged. For the "Me" generation it was a time described by "dress for success," the move up in the professional world, and the display of ambition and energy necessary to be successful and "get the good things in life." It could then be argued that socially there was a ready-made market for consumer goods which included cocaine.

In addition, the National Commission on Marijuana and Drug Abuse recommended the decriminalization of certain drugs such as marijuana. The National Institute on Drug Abuse became the center for drug research, and the Comprehensive Drug Abuse Prevention and Control Act (PL 91-513) ranked ordered drugs according to their potential for abuse and dependence and their accepted medical use. Although cocaine is a Schedule Two drug, ranked as a dangerous prescribable drug, its dangers were minimized during this time.

Politically, the opinion was that drug abuse was here to stay and complete elimination was impossible. This sentiment was expressed by the Carter Administration. In one of his Presidential messages to Congress, Carter announced that "penalties against possession of a drug should not be more damaging to an individual than the use of the drug itself; and where they are, they should be changed" (in Musto, 1987, p. 267). This utilitarian sentiment is also expressed by Plasket and Quillen (1985, p. 170): "it's impossible to say, but it is safe to observe that if one wanted to design a drug that corresponded to those changes in American social life, that drug would have presented precisely the same characteristics as cocaine." Cocaine

became part of mainstream America. By the mid-1970s, as in the mid-1800s, cocaine gained momentum, but the environment of toleration came to an abrupt end as opposition forces emerged in 1980.

The White House welcomed a First Lady who was personally committed to drug intolerance and a drug-free America. While the President's Administration was initially uncommitted to the First Lady's campaign, in 1986 the President launched what was described as a new approach against drugs. The new emphasis was on demand reduction. Demand reduction translated into a campaign at both the national and international level.

The public, media and governmental intolerance rose to its cenit as "crack" made its way to several areas of the United States. Crack is a smokable form of cocaine. It caused alarm because it is inexpensive and widely available to school age youngsters; it enters directly into the brain by way of the bloodstream and lungs and is highly addictive.

In 1986, President Reagan signed into law the Anti-Drug Abuse Act of 1986. While the emphasis is on law enforcement, its impact remains uncertain. On the one hand, the Gramm-Rudman budget act proposes cuts to a variety of agencies that include drug education and enforcement programs. On the other, campaigns have faded away after the election of the 200th Congress.

CONCLUSIONS

The purpose of this article was to make a historical analysis of cocaine. Among the issues raised, it was argued that this is the third period of popularity for the narcotic. Why is it important to trace the historical roots of the problem? First, the current crisis is being described as new. If anything, cocaine is undergoing its second period of popularity in the United States. Second, a better understanding of the roots of the problem can better equip the public, as well as policy makers, to take into account the social meaning that a drug can have at particular periods in history.

In the first section of this paper, the historical roots of the coca plant were put into perspective. The coca plant was part of the subsistence and social environment of what is today known as the Inca Empire. The importance of the plant was further emphasized and exploited after the Spanish Conquistadors colonized the territory. In modern times, some governments continue to protect the needs of their Indian population (e.g., Peru). However, ethnographic data provided by Morales (1986a, 1986b) suggests that the illicit world trade in cocaine is substantially changing the relations that the Indian population has traditionally sustained with the plant.

During the second period of popularity--the first in the United States--cocaine-laced substances were proclaimed to be a panacea by the emerging medical profession. Like today, cocaine went through a period of popularity during which use intensified and abuse was discovered. Later on, a period of intolerance developed, which culminated in the criminalization of the drug and drug abusers. The practices developed during this period formed the core of the United States' enforcement apparatus, while the political discussions of the period--1906-1920--resemble the issues raised today: namely, an unlimited international supply and a national demand for drugs.

Cocaine's popularity declined between 1930 and 1960. Although the law enforcement and criminalization approach is said to have been responsible for it, it seems more plausible to argue that other drugs became more popular. In addition, scientific and scholarly reports emphasized the problems caused by criminalization efforts. In particular, secondary deviance and labeling were described as the problems caused by the existing criminal sanctions toward drugs. A period of toleration developed while the dangers associated with some drugs were minimized.

The recently reported rise in cocaine abuse in the United States has led to a national perception of a "cocaine crisis" that requires immediate and far-reaching control efforts. During this third period of popularity--the second in the United States--it has been reported that cocaine has moved from an occasional recreational drug to a major international commodity. There is no doubt that cocaine and related substances are now considered the leading drug

problem in the United States. An international war effort was launched by the federal government to end the flow of illegal cocaine to the country. At the same time a national campaign has been directed toward educating the public to "just say no" to cocaine. A "drug-free society" has become the stated policy of the Reagan Administration.

REFERENCES

Ashley, R.
1975 Cocaine: Its history, uses and effects. New York: St. Martin's Press.

Becker, H. S.
1963 Outsiders: Studies in the Sociology of deviance. New York: The Free Press.

Bellassai, J. P. and P. N. Segal
1972 Addict diversion: An alternative approach for the criminal system. Georgetown Law Journal, 60(3):667-710.

Bonifaz, M.
1965 Bolivia, Frustracion y destino. Sucre, Bolivia: Impenta Universitaria.

Bonnie, R. J., and C. H. Whitebread
1970 The forbidden fruit and the three of knowledge: An inquiry into the legal history of American marijuana prohibition. Virginia Law Review, 56(6):971-1203.

_____
1974 The marijuana conviction. Charlottesville, Virginia: University Press of Virginia.

Brecher, E. M. and the Editors of Consumer Reports
1972 Licit and illicit drugs: The Consumers Union Report on narcotics, stimulants, depressants, inhalants, hallucinogens, and marijuana--including caffeine, nicotine, and alcohol. Boston: Little and Brown.

Bruun, K., L. Pan and I. Rexed
1975 The gentleman's club: International control of drugs and alcohol. Chicago: The University of Chicago Press.

Dickson, D. T.
1968 Bureaucracy and morality: An organizational perspective on a moral crusade. Social Problems 16(2):143-156.

_____
1973 Marijuana and the law: Organizational factors in the legislative process. Journal of Drug Issues, 3(2):115-122.

Duster, T.
1970 The legislation of morality: law, drugs, and moral judgement. New York: The Free Press.

Finot, E.
1954 Nueva historia de Bolivia: Ensayo de interpretacion sociologica (Chapter 2-5). La Paz, Bolivia: Papelenia y Editorial Giskent y Cia, S.A.

Galliher, J. F. and A. Walker
1977 The puzzle of the social origins of the marijuana tax act of 1937. Social Problems, 24(3):367-376.

Gregg, R. W.
1974 The international control system for narcotic drugs. In L. Simmons and A. Said (Eds.), Drugs, politics and diplomacy: The international connection (pp. 276-302). Beverly Hills, California: Sage Publications.

Grinspoon, L. and J. B. Bakalar
1985 Cocaine: A drug and its social evolution (rev. ed.). New York: Basic Books, Inc.

Hamilton, R. (translation and editor)
1979 History of the Inca Empire. (Austin, Texas: University of Texas Press.

Helmer, J.
1975 Drugs and minority oppression. New York: Seabury Press.

Inciardi, J. A.
1986 The war on drugs: Heroin, cocaine, crime, and public policy. Palo Alto, California: Mayfield Publishing Company.

Jeffe, A.
1976 Addiction reform in the progressive age: Scientific and social responses to drug dependence in the United States, 1870-1930. Unpublished doctoral dissertation, University of Kentucky.

Juan, J. and A. DeUlloa
1918 Noticias secretas de America. Madrid, Espania: Editorial America.

Kennedy, J.
1985 Coca exotics: The illustrated story of cocaine. New York: Cornwall Books.

King, R.
1972 The drug hang-up: America's fifty year folly. Illinois: Charles C. Thomas.

Kleeman, N. and A. I. Posner
1971 The Comprehensive Drug Rehabilitation and Treatment Act: Treatment in Lieu of Prosecution. Massachusetts Law Quarterly, 56(1):171-194.

Klein, H. S.
1982 Bolivia: The evolution of a multi-ethnic society. New York: Oxford University Press.

Lamour, C. and M. R. Lambenti
1974 The international connection. New York: Pantheon Books, Random House.

Lidz, C. W. and A. L. Walker
1980 Heroin, deviance and morality. Beverly Hills, California: Sage Publications.

Lindesmith, A. R.
1965 The addict and the law. Bloomington, Indiana: University Press.

_____
1968 Addiction and Opiates. Chicago: Aldine Publishing Company.

McLaughlin, G. T.
1973 Cocaine: The history and regulation of a dangerous drug. Cornell Law Review, 58(3):537-573.

McNicholl, A.
1983 Drug trafficking: A north-south perspective. Ottawa, Canada: The North-South Institute.

Morales, E.
1986a Coca and cocaine economy and social change in the Andes of Peru. Economic Development and Cultural Change, 35(1):143-161.

_____
1986b Coca culture: The White Cities of Peru. Thesis, City University of New York Graudate School Magazine, 1(1):4-11.

Morgan, H. W. (ed.)
1974 Yesterday's addicts: American society and drug abuse, 1865-1920. Norman, Oklahoma: University of Oklahoma Press.

Morgan, H. W. (ed.)
1981 Drugs in America: A social history, 1800-1980. Syracuse: Syracuse University Press.

Morgan, P.
1978 The political use of moral reform: California and Federal Drug Policy, 1910-1960. Unpublished doctoral dissertation, Univeristy of California, Santa Barbara.

_____
1983 The political economy of drugs, and alcohol. Journal of Drug Issues, 13(1):1-7.

Murphy, M. F. and R. H. Steele
1973 See United States Congress, House, Committee on Foreign Affairs, The World Narcotics Problem: The Latin American Perspective.

Musto, D. F.
1973 The American disease: Origins of narcotic control. New Haven: Yale University Press.

_____
1987 The American disease: Origins of marcotic control (expanded ed.). New York: Oxford University Press.

Nanes, A. S.
1974 United Nations activities in international drug control. In L. Simmons and A. Said (Eds.), Drugs, politics and diplomacy: The international connection (pp. 257-275). Beverly Hills, California: Sage Publications.

Norland, S. and J. Wright
1984 Bureaucratic legitimacy and the drug menace: Notes on the Marijuana Tax Act. Deviant Behavior, 5:239-254.

Paredes, M. R.
1963 Nitos, supersticiones y supervicencias populares de Bolivia. La Paz, Bolivia: Ediciones Isla.

Phillips, J. L. and R. D. Wynne
1980 Cocaine: The mystique and the reality. New York, New York: Avon Books.

Plasket, B. J. and E. Quillen
1985 The White Stuff. New York, New York: Dell Publishing Co., Inc.

Salmon, R.
1979 My Quest for El Dorado. London: Hodder and Stoughton.

Samuels, J. W.
1963 International control of narcotic drugs and international economic law. The Canadian Yearbook of International Law, 1:192-223.

Stein, W. W.
1961 Hualcan: Life in the highlands of Peru. Ithaca, New York: Cornell University Press.

Stern, S. J.
1982 Peru's Indian peoples and the challenge of Spanish conquest: Huamanga to 1640. Madison, Wisconsin: Univeristy of Wisconsin Press.

Taylor, A. H.
1969 American diplomacy and the narcotics traffic: 1900-1939. Durham: Duke University Press.

Terry, C. E. and M. Pellens
1928 The Opium Problem. New York: Bureau of Social Hygiene.

Thornton, E. M.
1983 Freud and cocaine: The Freudian fallacy. Worcester, Great Britain: Bland and Briggs.

United States, Department of Justice, Bureau of Narcotics and Dangerous Drugs, Strategic Intelligence Office
1972 Latin American, the United States and the drug problem. Washington, D.C.: U.S. Government Printing Office (June 1).

Valcarcel, L. E.
1964 Historia del Peru antiguo (Vol. 1 and 3). Lima, Peru: Editorial Juan Mejia Boca.

Walker, W. O., III
1974 The politics of drug control: The United States and Latin America, 1900-1945. Unpublished Doctoral Dissertation, University of California, Santa Barbara.

_____
1981 Drug Control in the Americas. Albuquerque, N.M.: Univeristy of New Mexico Press.

Wukasch, B. C.
1972 Marijuana and the law: An analysis of an evolving federal drug policy. Unpublished doctoral dissertation, University of Arizona.

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THE BOLIVIAN COCAINE INDUSTRY

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INTRODUCTION

Coca has meant many things to many people in Bolivia over a long period of time. To the Incas, it was the gift of the gods; to the early Spanish padres, it was evil; to the Spanish conquistadors and their descendants, it was a profitable trade item; to the Bolivian peasant, it has always had deep religious and cultural significance with the mastication of the leaves serving as a means of escaping from the rigors of a harsh environment and the everyday realities of the struggle for survival in a situation of extreme poverty. Today, it is the main cash crop of approximately 17,000 peasant farmers living in the Chapare and Yungas regions of Bolivia and the raw material for the Bolivian cocaine industry which currently produces approximately one-half of the world's coca paste supply, the raw material used to make cocaine hydrochloride.(1) The purpose of this paper is to describe and analyze the development of this industry and the impact it has had on Bolivia.

THE ORIGIN OF THE BOLIVIAN COCAINE INDUSTRY

Although the coca leaf has been cultivated in Bolivia and utilized by the indigenous population for religious and

social purposes for a long period of time, the production of cocaine is a relatively new phenomenon. The Bolivian cocaine industry emerged as an integral part of the Latin American cocaine network that developed to supply the U.S. and European markets. Less than one-million Americans had experienced the use of cocaine by 1970, whereas by 1980, 4 million Americans were using cocaine regularly. By 1984 over 6 million Americans were using cocaine and another 25 million were infrequent users.(2) Since 1984 use has declined in the U.S.; however, it is estimated that 4 to 5 million Americans continue to be frequent users of cocaine.(3) To supply the American appetite, an estimated seventy metric tons are smuggled into the U.S. annually from source regions in Latin America. An additional twenty to thirty metric tons are produced to supply rapidly expanding markets in European and Asian countries.(4)

In the Latin American cocaine network that emerged during the 1970s, Colombia became the main site for refining cocaine in its pure form, cocaine hydrochloride, while Bolivia and Peru became the main suppliers of coca paste and cocaine base, the basic raw materials from which cocaine hydrochloride is made.(5) It is estimated that 75 percent of the pure cocaine exported from Latin America is produced in Colombia, 15 percent in Bolivia, five percent in Peru, and five percent in other countries.(6) In contrast, 80 percent of the paste is produced in Bolivia and Peru with the remainder being produced in Brazil, Ecuador and Colombia.(7) Coca paste is normally produced near the areas of coca leaf production while cocaine hydrochloride is produced where the necessary chemicals of acetone and ether are available and organized networks exist for smuggling it from Latin America into the United States and other countries.

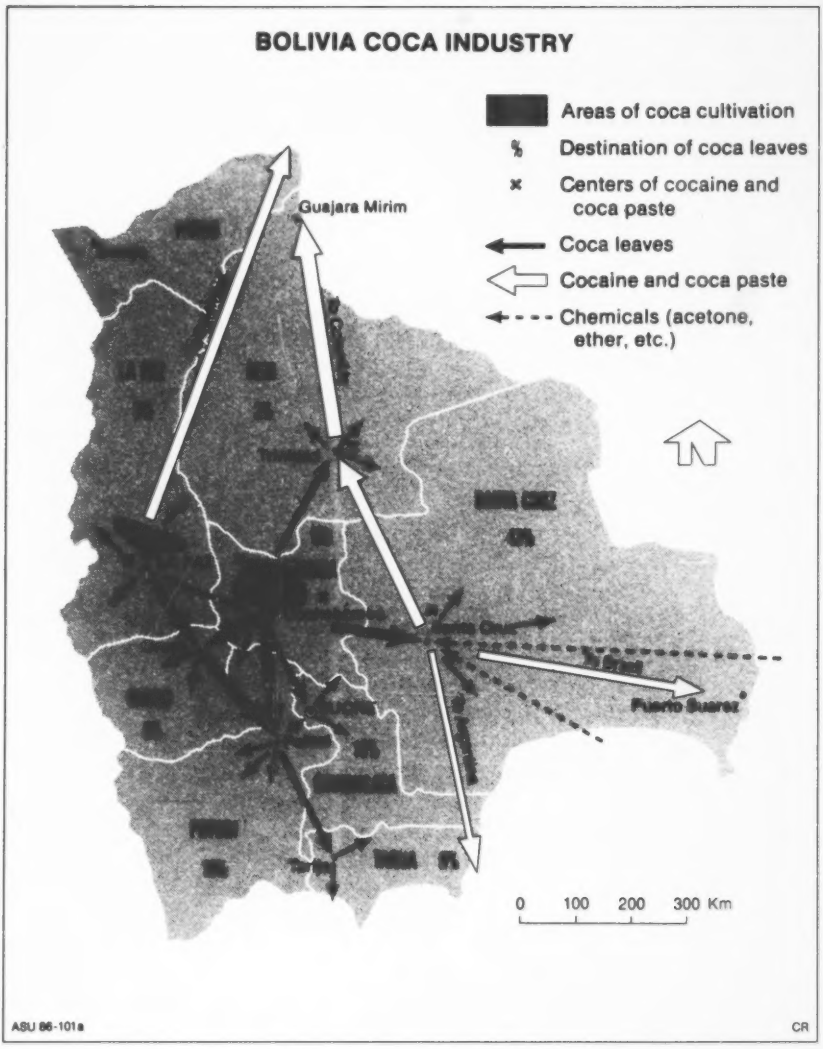
The primary areas of coca leaf production have historically been the Yungas and Chapare regions of Bolivia and the upper Rio Huallaga Valley of Peru. However, due to increased market demand and increased pressures to control and eliminate leaf production in the traditional areas, new areas of production are rapidly developing in the tropical rainforests of eastern Ecuador, southeastern Colombia, and the upper Amazon of Brazil.(8) The emergence of Colombia as the source of manufacturing and smuggling of cocaine into the United States rather than

Bolivia and Peru where the coca leaves and paste are produced was largely due to the prior existence of a well-organized narcotics industry that was supplying the U.S. market with high quality marijuana.(9) Colombia also had good supplies of ether, acetone, and other chemicals necessary to make pure cocaine. It was also nearer to the U.S. market with numerous direct connections by both land and sea which facilitated smuggling operations. However, recent efforts of the Colombian government to control and eliminate the cocaine hydrochloride industry have caused this industry to shift some of its productive capacity to Brazil, Panama, Bolivia, and Peru where acetone, ether, and other chemicals are becoming more available and the skill and expertise in producing the pure product are being rapidly acquired by individuals who formerly had only the knowledge, chemicals, and equipment to manufacture coca paste.(10) Map 1 provides a geographic representation of the Latin American cocaine network.

THE DEVELOPMENT OF THE BOLIVIAN COCAINE INDUSTRY

During the 1960s small amounts of coca paste were produced in Bolivia and smuggled to Chile, Argentina and Brazil where pitillos, cigarettes composed of a mixture of tobacco and coca paste, were becoming popular.(11) In the early 1970s with the ever-increasing demand for coca paste to supply the rapidly developing Colombian cocaine hydrochloride industry, the Bolivian cocaine base and coca paste industry began to flourish. Enormous profits were to be made at a time when there was little vigilance or control by the government. Numerous small processing plants known as "cocaine kitchens" came into operation to extract paste from coca leaves. These small factories were located primarily in the city of Cochabamba and the small villages in the nearby countryside.

Cochabamba's proximity to the Chapare, the main region where the leaves were grown, only 90 miles, and the availability of an abundant supply of kerosene and other chemicals needed for the extraction of the paste from the leaves were factors in causing the industry to locate here. The importance of Cochabamba as a processing site is indicated by Bolivian tax data for 1972 which indicate that



Map 1
Bolivia Coca and Cocaine Industry

52 percent of the coca leaves arriving at Cochabamba from the Chapare never left the area for the areas of traditional leaf consumption in the Highlands of Oruro, Potosi, Sucre, and La Paz provinces.(12)

After the paste was extracted from the coca leaves, it was smuggled to Colombia by air or via overland routes through Peru and Ecuador. During this period most of the paste was transported to Colombian cocaine refineries in small quantities, carried by individuals known as "mules". These were often tourists or other people visiting Bolivia who were paid to transport the paste. A well-organized network for smuggling large volumes of Bolivian paste to Colombia did not develop until wealthy and influential cattle ranchers in the Beni region, prosperous and politically powerful ranchers, farmers, and businessmen in the Santa Cruz region, and some high level officers in the Bolivian military, began to organize the industry on a large scale during the late 1970s.(13) By the late 1970s the Bolivian government on the insistence of the U.S. was beginning to apply increased enforcement pressure on the industry in Cochabamba. A program was initiated in 1977 to register all producers, transporters, and sellers of coca leaves as a means of insuring that the leaves never made it to illegal coca laboratories. A series of raids by the police were carried out resulting in the location and destruction of many of the small "cocaine kitchens" in the Cochabamba Valley. The response of the coca paste industry was to shift production to the Santa Cruz region, particularly the towns of Montero and Warnes located in an agricultural area to the north of Santa Cruz. Here government enforcement was much weaker and the region was more independent of strong political control by the central government in La Paz. Additional reasons for the shift of the industry to the Santa Cruz region were that two of the major groups organizing the industry owned extensive land holdings in this region and had aircraft and airstrips on their properties to fly the paste to Colombia.(14) The coca leaves could also be moved overland by rivers and forest trails to Santa Cruz, which was located only 90 miles east of the main leaf-producing area in the Chapare, without passing through government check points on the road from the Chapare to Cochabamba to Santa Cruz. Once Santa Cruz became the dominant center of refining, overland transportation of paste to

Colombia was largely discontinued, and the paste was flown directly to Colombia.(15)

The period of the late 1970s and early 1980s was a time when world demand for cocaine grew rapidly. Bolivia's response led to the "golden era" of coca paste production. By this time, high-level military officers had become heavily involved in the industry. In July 1980 a group of conservative military, headed by Luis Garcia Meza, seized control of Bolivia in what came to be called the Cocaine Coup. One of the new president's first acts was to release several leading narcotic traffickers from jail. He proceeded to have the police records of cocaine traffickers destroyed and to take action against those who disagreed with his policy.(16) As military officers and prosperous and influential people in the Santa Cruz and Beni Regions became increasingly involved in the industry, the military began to pocket large sums from drug dealers for protection and as a means of maintaining political power. In despair, local U.S. narcotics control agents assigned to Bolivia closed their offices.

As a large well-organized trafficking network in Bolivia expanded, increasing quantities of paste flowed to Colombia and "narco dollars" flowed to Bolivia or were deposited in foreign accounts. The Bolivian industry was suddenly a multi-billion dollar industry.

It was during this period that Roberto Suarez Gomez completed the organization of the narcotic industry that he had initiated during the mid-1970s. As an expert pilot with a fleet of planes acquired to transport beef from his isolated ranches in the Beni to the markets in the highlands and Chile, he became the middleman between Bolivian coca growers and Colombian buyers, shipping paste to cocaine processing plants in Colombia. By 1980, DEA intelligence reports estimated that Suarez's coca operations were earning him $400 million a year. The centers of paste production continued to be concentrated in Santa Cruz with the industry strongly controlled by the military, Suarez Gomez, and a few other wealthy Bolivians.(17) Small producers marketed their paste through organizations set up by these individuals.(18)

Due to increased pressure from the U.S. government on Bolivia over the narcotics traffic and the disenchantment

within the military and among many influential Bolivians over the involvement of high level military officers in the trade, Garcia Meza was forced to resign on August 4, 1981. His replacement, General Celso Torrelio, increased enforcement efforts resulting in further changes in the industry.(19) As Santa Cruz became more heavily policed much of the paste production was shifted to remote areas in the rainforests between Santa Cruz and the Chapare and to small villages in the Chapare to be closer to the source of the coca leaves and to reduce possibilities of government discovery and destruction of the refineries.(20)

Many new refineries were also placed along rivers leading from the Chapare to the Beni. The village of Sinajota in the Chapare and Ichilo River between Chapare and Santa Cruz became the primary centers of production.(21) The leaves, along with the kerosene, sulphuric acid, and sodium carbonate needed for processing of the paste, could easily be moved to these sites from Santa Cruz or Brazil with little risk of detection. Coca sendas, pathways through the jungle from the Chapare to the new sites, soon developed and many peasants, called sepes, a Bolivian term for ant, started earning income from carrying cargas, 50 pound bundles of coca leaves, to the new sites.(22) Since the production, transportation, and marketing of Chapare coca leaves was increasingly being monitored and controlled by the government, this was the only means of maintaining a supply of leaves and avoiding detection and destruction of the laboratories. This period resulted in a return of the industry to the Cochabamba Valley with numerous sepes employed to carry coca leaves from the Chapare over remote mountain trails to refineries placed there.(23)

During 1983-1985 other changes began to occur in the industry. A major crackdown on the cocaine industry in Colombia resulted in the destruction of many of that nation's cocaine hydrochloride processing plants. In response there was a shift to the previously mentioned production sites in Panama, Brazil, and Bolivia. Although coca paste continued to be flown to refineries still in operation in Colombia, increasing amounts were being refined into cocaine hydrochloride in Bolivia, mainly in the Beni Region and along the Brazilian frontier where ether and acetone could be easily smuggled into Bolivia.(24) The

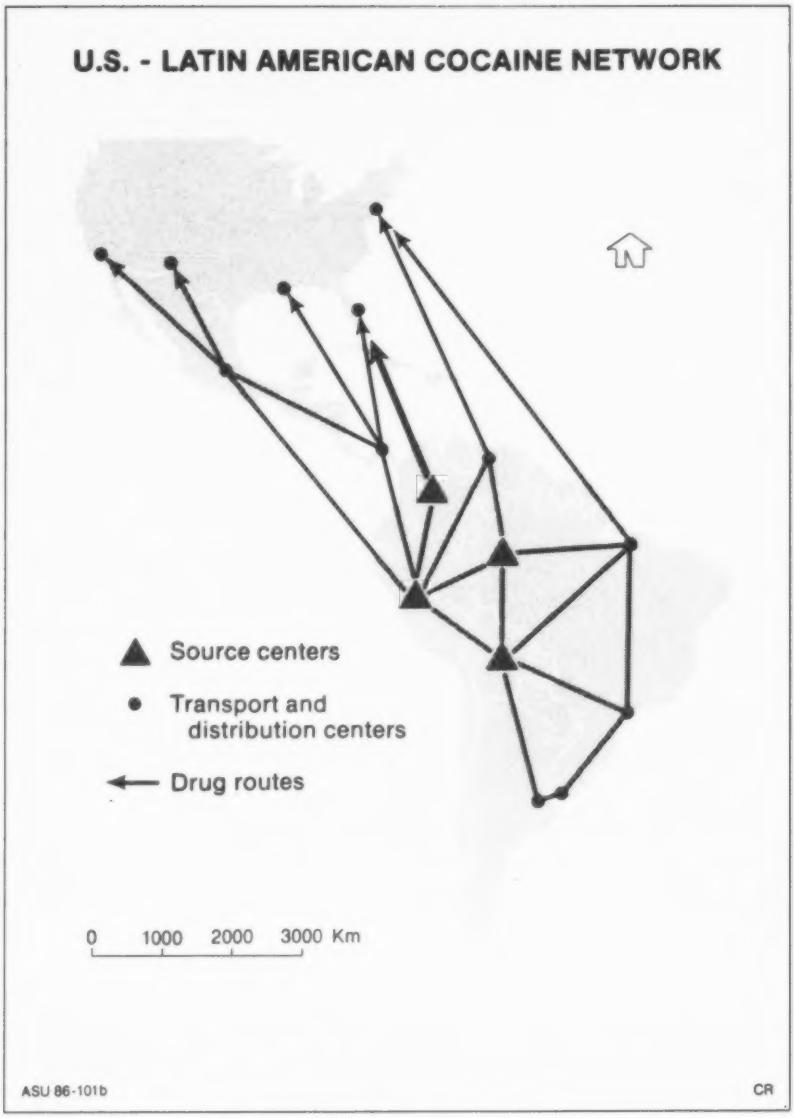
refined Bolivian product was flown from air fields on remote ranches in the Beni and Santa Cruz regions to the United States with refueling stops in Panama, the Bahamas, and other islands in the Caribbean. Map 2 portrays the locational aspects of the industry in 1984.

Increased sophistication of techniques to detect and trace drug money laundering operations in the United States which resulted in the seizures of bank deposits, property, and other assets of several major Latin American drug dealers, caused some Bolivian dealers to increase their investments in the thriving underground economy of Bolivia and other economic enterprises in Bolivia.(25) Economically speaking, these changes were beneficial to the Bolivian drug industry. Greater profits could be made from the refining and sale of cocaine base and cocaine hydrochloride rather than coca paste. For example, in 1985 the average price of a kilo of coca paste was $1,600 while a kilo of cocaine base sold for $9,000 and a kilo of cocaine hydrochloride had a value of $20,000. The increased investment of narco-dollars in the local economy gave a boost to the Bolivian economy and increased the power and political influence of the narcotic organizations.(26)

ECONOMIC VALUE OF THE BOLIVIAN COCAINE INDUSTRY

It is difficult to estimate the economic dimensions of the Bolivian cocaine industry. Cocaine production is an illegal activity in Bolivia; therefore, only indirect means can be used to estimate the extent and economic value of the industry.

The potential for cocaine production can be determined by estimating the excess of leaf production over domestic needs. In the late 1970s and early 1980s it was estimated that about 16,000 metric tons of leaves were required to supply the demand of traditional leaf uses in the internal market as well as the export market for leaves used for medicinal purposes. One could therefore assume that any excess production over internal demand requirements would be available for use by the cocaine industry. Table 1 gives some indication of the rapid increase of excess leaf production over domestic demand between 1978 and 1977. Although leaf production tended to increase constantly



Map 2
U.S. Latin American Cocaine Network

TABLE 1

PRODUCTION ESTIMATES OF COCA LEAVES,
COCA PASTE AND COCAINE BASE IN BOLIVIA IN METRIC TONS

Year	a Hectares	b Coca Leaf Production	c Surplus Leaf Production	d Potential Coca Paste	Production Cocaine Base
1978	15,900	28,620	9,750	48.7	21.4
1979	19,400	34,920	14,250	71.2	31.3
1980	27,500	49,500	25,740	128.7	56.6
1981	35,300	63,000	36,480	182.3	80.2
1982	36,100	64,580	38,262	191.3	84.2
1983	36,100	64,980	38,289	191.4	84.3
1984	34,200	61,560	34,089	170.4	80.0
1985	35,300	63,540	35,555	178.1	80.1
1986	35,200	63,180	35,385	176.9	80.0
1987	35,000	63,000	36,000	180.0	79.2

a. Hectares of coca production are for the Chapare and Yungas regions of traditional production. Data are based on Bolivian government estimates of production in the Chapare and Yungas. No estimates are available for hectares cultivated in clandestine fields outside the Chapare and Yungas region. These fields may now account for 10 to 15 percent of Bolivia's leaf production.

b. Production estimates are based on an average yield of 1800 kilos per hectare. Actual yields vary from 1400 to 2200 per hectare depending on age of coca, climate, insect damage, etc.

c. Surplus leaf production is estimated by subtracting the estimated legal domestic and export needs of 16,000 metric tons per year from estimated production and further reducing estimated production 25 percent for leaves lost due to lack of harvest, insects, confiscation, etc.

d. One metric ton of leaves yields an average of 5 kilograms of paste or 2.2 kilograms of Cocaine Base or Cocaine Hydrochloride.

between 1978 and 1983, there was some leveling off beginning in 1984. This was possibly due to a decreasing demand for cocaine on the world and U.S. market.(27) The decline after 1984 can also be attributed to increased effort of the Bolivian government to destroy the cocaine refineries. Much of paste and cocaine hydrochloride productive capacity was destroyed by raids of U.S. and Bolivian anti-narcotic strike forces.(28) Bolivian leaf production possibly did not decline as much as indicated in Table 1. There is strong evidence that new fields were being developed in more remote areas to avoid government controls on production and marketing of coca leaves. As these fields come into production it can be assumed that production may return to its 1984 level.

Undoubtedly not all surplus leaf production is used to make some form of cocaine. Climate, labor, and market conditions strongly affect leaf production. Harvesting of leaves is especially sensitive to climatic conditions, labor availability, and market potential. Three days of sunlight are required to dry the leaves after harvesting or they will spoil. During wet years much of the coca crop is lost. In 1983 and 1984 the effects of El Niño that brought heavy rains to the Bolivian tropics undoubtedly caused a reduction in output. Since the main leaf harvesting season corresponds to the time of peak labor demand in the highland agricultural regions, a labor shortage may also exist in some years.

Market potential is affected by both supply and demand conditions. Fluctuations in production in other Latin American leaf-growing areas can give rise to important changes in prices for both leaves and cocaine in Bolivia. For example, an abundance of leaf and cocaine production in Latin America in 1983 and 1984 brought about a rapid increase in supply which led to a drop in prices in Bolivia.(29) In contrast, the success of crop eradication efforts in the coca producing areas of Peru in 1985 and 1986 provided increased market opportunities for Bolivian coca farmers. Estimates show that about 15 to 25 percent of the Bolivian coca crop is not harvested each year from a combination of these factors.

Between 1982 and 1984 Bolivia probably produced about 170 to 190 metric tons of coca paste each year, which could

be converted into 80 to 84 tons of cocaine base or cocaine hydrochloride. During the period from 1984 through 1987 the sale price of coca paste and cocaine hydrochloride apparently declined in Bolivia due to a surplus of cocaine on the world and U.S. markets. The entry of government troops into the Chapare in 1984 and again in 1987 resulted in the destruction of many cocaine factories. This brought about a drastic decline in the value of coca leaves since limited facilities were available to process the leaves into paste or cocaine hydrochloride.(30). By late 1987 the industry had been reestablished and the prices paid farmers for leaves were again increasing. Even with government pressure during this period the industry continued to generate approximately 100 million dollars in income to coca farmers and 500 million to 1 billion dollars to the traffickers in paste and cocaine hydrochloride.(31) Estimates of potential cocaine production in Bolivia are provided in Table 2. It should be recalled that the estimates of the value of the industry provided in Table 2 do not include the values of cocaine generated from leaves produced in clandestine fields outside the Chapare and Yungas regions. Therefore, one can assume that the value of the industry was considerably higher than the estimates given in Table 2.

ECONOMIC IMPACT OF THE COCAINE INDUSTRY

During the 1979-1981 period, when the cocaine industry was flourishing with little government interference, ideal political and economic conditions existed for the investment of narco-dollars in Bolivia. Most of these dollars apparently went into purchases of land, other real estate, and consumer goods; however, investments were also apparently made in many legitimate business enterprises.(32) Particularly noteworthy were investments in transportation, with numerous small entrepreneurs buying trucks to transport coca leaves or other products.(33) As the industry began to flourish many small-scale industries emerged to supply chemicals and other materials used in processing and transporting coca paste.(34) Later, when the Siles government came to power in 1982, there appeared to have been some abatement in this type of investment due to increased narcotics enforcement.

TABLE 2

POTENTIAL VALUE OF COCA LEAVES, COCA PASTE, COCAINE BASE AND COCAINE HYDROCHLORIDE IN BOLIVIA
(million U.S. dollars)

Year	Coca Leaves	Coca Paste	Cocaine Base	Cocaine Hydrochloride
1978	46.6	77.9	192.6	428.1
1979	56.8	113.9	281.7	626.0
1980	80.5	205.9	509.4	1,132.0
1981	129.3	291.7	721.8	1,604.0
1982	130.1	306.8	757.8	1,684.0
1983	130.1	306.2	758.7	1,686.0
1984	92.2	272.6	720.0	1,600.0
1985	94.5	178.1	480.6	1,200.1
1986	63.1	176.9	480.0	1,200.0
1987	94.5	180.0	463.8	1,158.0

Estimates are based on coca leaf values averaging $1,600 per metric ton between 1978-1980, $2,000 per ton between 1981-1983, and $1,500 per ton in 1984-1985, $1,000 per ton for 1986, and $1,500 per ton in 1987. The average market value of coca paste is $1,600 per kilogram in Bolivia while the average market value for cocaine base averages $9,000 per kilogram. The average market value of cocaine hydrochloride is $20,000 per kilogram during 1978-1984. After 1984 the value declined. During 1985-1987 the average values were: coca paste $1,000 per kilogram, cocaine base $6,000 per kilogram, cocaine hydrochloride $15,000 per kilogram.

The rapidly deteriorating economy during 1982-1985 also appeared to have had an important effect on the industry. It is likely that large quantities of narco-dollars initially were withdrawn from banks and investments in businesses in Bolivia and transferred to foreign bank accounts due to the unstable economic conditions in Bolivia. The flight of narco-dollars undoubtedly helped created a scarcity of dollars which contributed to foreign exchange problems and fueled inflation.

The narco-dollars that remained in Bolivia were probably increasingly invested in the rapidly emerging underground economy. The growth in the underground economy undoubtedly caused financial distress among some legitimate businesses in Bolivia. One can also assume that there was a loss of tax revenues as more activity shifted to the underground economy. As the legitimate economy found it more difficult to obtain capital for continued operation and expansion due to a shortage of foreign exchange, the underground economy expanded rapidly because it had ready access to narco-dollars.

As normal lines of credit dried up, the only alternatives for some businesses were to seek narco-dollars to continue their operations. These circumstances led to increased influence of narcotic traffickers in the business community as they began to invest in legitimate businesses. It not only provided the means by which the narcotics industry could rapidly expand its influence on government economic and political policy but also provided narcotic traffickers an opportunity to achieve a degree of economic and social status in Bolivia.

The lower wages in terms of real purchasing power brought about by rapidly rising inflation also caused many workers to seek employment in the underground economy. These workers were increasingly attracted to aspects of the underground economy financed by narco-dollars in that payments for their services could be rendered in dollars rather than highly inflationary Bolivian pesos. The flight of workers from the declining legitimate economy into the expanding underground economy undoubtedly contributed further to the financial woes of the country through loss of individual income tax revenue. It was not possible to assess

and collect taxes from workers or from the sale of products in the underground economy.

It is probable that the cocaine industry may have also influenced indirectly the production of some basic foodstuffs and could have contributed to food shortages. The relative profitability of coca leaf production compared to other agricultural products in the Chapare and Yungas undoubtedly caused many farmers to cut back on the production of food crops and emphasize coca cultivation. Since the Chapare and Yungas supply large quantities of citrus, pineapples, bananas, rice and corn to the highlands, any decrease in productivity would therefore affect food availability and food prices in the highlands.

There is yet another dimension of this phenomenon. Many of the coca farmers in the Chapare and Yungas own and operate farms in highland Bolivia. The peak labor season for coca harvest in the tropics corresponds to the peak labor demands for cultivation of corn, potatoes, and vegetables in the upland valleys and the altiplano. Therefore, it could be assumed that some farmers who owned land in both areas, neglected food production in order to undertake the more profitable coca leaf production. There may also have been an influence in the availability of labor to work in food production as there apparently was a strong migration of workers from highland agricultural regions and the large commercial agricultural region north of Santa Cruz to the Chapare coca fields. Labor was attracted to the high wages paid for harvesting, transporting, and processing coca leaves in cocaine.

It is only fair to say that the cocaine industry has had a positive effect on some peasant economic activities. Much of the money derived from various aspects of the cocaine industry by the peasant farmers who produce the leaves and the peasant families who operate the small "cocaine kitchens" has gone into the purchase of land or green revolution inputs to improve their farming operations in the upland Cochabamba Valley. Others engaged in this activity have used their profits to create small businesses or to purchase trucks to enter the transport business. Unlike the profits of the major dealers, those of the peasants involved in the industry have usually gone into the improvement of their living conditions and prospects for a better economic

future rather than into the purchase of luxury goods and real estate or deposits in foreign bank accounts.

The cocaine industry has also been a significant source of employment for peasants, either as harvesters of leaves, pisadores (those who trample the leaves before processing), or as transporters, sepes, of leaves to cocaine factories. Approximately, 5,000 to 6,000 peasant laborers are engaged in these activities.

THE SOCIAL IMPACT OF THE COCAINE INDUSTRY

The economic returns of the cocaine industry to the peasant economy are offset by the high social costs. Many peasants working in the industry have become addicted to smoking pitillos (cocaine-laced cigarettes) and ingesting stronger forms of cocaine.(35) Others suffer from severe ulcerated sores on their feet from trampling the coca leaves mixed with kerosene and other chemicals. Thus, the social costs and future health costs associated with peasant participation in the industry are likely to be significant.

The industry has also led to widespread corruption among the military, police, and numerous government officials throughout the country. Bribes and payoffs have become a common form of protecting the industry.(36) The wealth generated by the industry has tended to enrich primarily members of the upper class rather than the peasant or working class, thereby increasing to some extent social class differences in Bolivia. An awareness of the ultimate effect of the social costs of the industry has led to efforts of the Bolivian government, with financial and other support from the U.S., to eliminate coca and cocaine production in Bolivia.

The Politics of Coca and Cocaine Control

Control of coca and cocaine production became a major political issue in Bolivia during the 1980s. On the one hand were various groups with considerable political power that were strongly opposed to government controls on the coca industry. These included: the coca-leaf growing farmers who saw controls as a loss of revenue; the transporters who made a living from transporting the leaves; the merchants

and other individuals who profited from the sale of the leaves; the cities, universities, and other institutions who derived tax income from coca sales; the narcotic traffickers and corrupt government officials who profited from the trade; and the persons in the underground for business activities. The support for controls came from many middle and upper-class Bolivians who opposed the trade on legal or moral grounds and who realized that large numbers of Bolivian youth were increasingly becoming addicted to the use of pitillos, and other forms of cocaine use. There has also been concern among many Bolivians about the power of the industry to generate widespread corruption and the potential to increasingly influence economic and political policy in the country.

Due to the divergent views of these groups and their offsetting political pressures, the Siles government which came to power in 1982 was unwilling to take a strong stand on the coca issue. Since control of the drug trade was of considerable importance to the United States, it was ultimately U.S. pressure accompanied by threats to terminate economic assistance to Bolivia that caused the Siles government to agree to a program designed to control and reduce coca leaf production.(37) In August 1983 the United States and Bolivia entered into an accord which called for:

a) The creation of an agency known as the Directorate for Control and Fiscalization of Coca (DNCFC) whose responsibility was the control of the production, purchase, transportation and sale of coca leaves as well as the registration and licensing of all participants in the industry.

b) An increase in manpower and the extension of the functions of the National Directorate for the Control of Dangerous Substances (DNCSP) and the creation and training of a special police force for narcotics control. These would consist of an elite thirty-man group devoted to the investigation and apprehension of major narcotics violators (IBP), a 150 man mobile rural patrol unit (UMOPAR) to search out and destroy laboratories, and a rural police task force (PRE) to operate primarily in the Chapare.

c) The reduction of leaf production through crop substitution and coca eradication programs, to be accompanied by programs of agricultural and socio-economic development programs, funded by the U.S. government. For this purpose, the Secretariat for the Development of the Bolivian Tropics (SDBT) and the Director for the Eradication of Coca (DIRECO) were created.

The U.S. government was to provide $62 million to fund these programs. Funding was to be allocated as follows: $1.87 million to increase narcotics police enforcement efforts, $400,000 for registering coca producers, transporters, and merchants, $2.5 million to pay farmers for voluntary crop reduction, and $58 million for socio-economic and agricultural development projects in the Chapare.

The agencies were rapidly created and the personnel trained. The Siles government, however, was reluctant to initiate the programs prescribed under the agreements for fear of violence from the coca producers in the Chapare who were highly organized into the Special Federation of the Chapare (FEC), a political organization of local peasant groups which strongly opposed production controls.(38) There was also a fear of national political repercussions from the Confederation of Bolivian Peasant Workers (CSTUCB) who often supported causes of local peasant unions, sindicatos, by organizing road blocks and demonstrations throughout the country. This latter organization also had strong political ties with the Bolivian Workers Central (COB) and the Siles government.

The government's fears were not unfounded; the FEC had a strong history of opposition to coca controls which often resulted in violent demonstrations. For example, when the Committee to Fight Narcotics Trafficking (CLCN), which was under the control of DNCSP, set up wholesale marketing facilities for coca leaves in the Chapare in March 1982 and began forcing farmers to market their leaves through these facilities, the (FEC) took immediate action. The markets were frequently occupied by sindicato members and coca leaf sales were disrupted. Government employees in the markets were threatened and even abused.(39)

The national federation, CSTUCB, also gave its support to the Chapare coca farmers. To protest government economic policy the CSTUCB set up roadblocks in April 1983 that isolated the cities of La Paz and Oruro. As part of its demands for lifting these roadblocks, the federation insisted on the free marketing and industrialization of the coca leaf with no government controls. The government markets were quickly closed and peasants resumed marketing their coca on the free market. The price increased rapidly. From actions such as these, it is clear why the Siles government was unwilling to implement the coca control program formulated under the August 1983 accord.

During the remainder of 1984 numerous requests by the U.S. ambassador, Edwin Corr, to implement the program went unheeded. However, political pressure on the Bolivian government came from an unexpected source. Senator Paula Hawkins from Florida, Chair of the Senate Subcommittee on Narcotics and Alcohol Abuse, threatened U.S. legislation that would cut off all United States aid to Bolivia unless the government began to take actions to control and eliminate narcotics traffic.(40) This got results. Within weeks the Siles government responded by declaring the Chapare a military zone. On August 10, 1984 military troops were sent to occupy the area. The time lapse between the announcement of the occupation and the actual arrival of the troops, however, allowed most of the narcotic traffickers to flee. As a consequence, skeptics raised questions about the seriousness of enforcement efforts.

The military occupation of the Chapare brought an instant reaction from the sindicato leagues. The FEC together with the departmental federation and the CSTUCB exerted pressure on the government by means of convening special congresses to voice grievances about programs of coca crop reduction, organizing protest marches and hunger strikes in support of the coca producers of the Chapare, and setting up road blocks to seal off the city of Cochabamba.(41) The tactics of hunger strikes and protest marches failed to elicit much official response. However, the isolation of the city of Cochabamba from the rest of Bolivia through road blockades brought concessions from the government. An agreement was made whereby the curfew would be lifted in the militarized zone, a commission would be created to negotiate with the government on terminating

the military occupation of the Chapare; a rural electrification program would be developed in the Chapare; and the civil rights of the sindicatos with respect to resuming normal activities would be honored. In return for this agreement, the sindicatos removed the road blocks. One month later, in September 1984, decrees were signed between the Bolivian government and CSTUCB to end the military occupation of the Chapare. With the withdrawal of the troops to the barracks, the "cocaine kitchens" once again began operating in numerous villages in the Cochabamba Valley and the Chapare.

The continued unwillingness of the Bolivian government to control production and trafficking caused Senator Hawkins to renew her attack. On October 4, 1984, she introduced a resolution that Bolivia's access to future U.S. aid would depend on a demonstrated commitment to control leaf production and narcotic traffic. On October 17, 1984, this was followed by an offer from the U.S. government of $220 million in assistance if Bolivia complied. The response of the Siles government was favorable. On October 28th the president sent the "Leopards", Bolivia's specially trained and U.S. equipped 200 man anti-narcotics force, into the Chapare and the Beni in search of traffickers. The primary target was Roberto Suarez Gomez. The Leopards raided several ranches, failed to find Suarez, destroyed several small factories, mainly along the Ichilo River, and seized 380 kilos of cocaine. But in the final account, the results of the sweep through the Beni yielded less results than expected and had little effect on the narcotics traffic except to drive the traffickers' operations into more remote areas.(42)

The pressure applied on the traffic, however, did bring other results. An emissary was sent by Suarez to meet with Siles to attempt to negotiate an agreement. It is alleged that Suarez offered the government $200 million in loans in return for reduced pressure on the narcotics traffickers. But the government refused. As an outcome there were threats by narcotic traffickers on the lives of Ambassador Corr and other U.S. and Bolivian officials. Furthermore, the traffickers placed ads in Bolivian papers stating that they would pay off the Bolivian foreign debt with cocaine money if Bolivia would abandon control efforts. In an open letter to President Reagan in the La Paz daily El Diario, Suarez

also offered to turn himself in on two conditions; his son be released from a Miami jail and the United States pay off Bolivia's entire foreign debt. The issue became moot when a Miami federal jury acquitted Robert Suarez Jr. on cocaine trafficking charges.

During 1984 and 1985 the traffickers increasingly turned to the news media to project the point of view that the narcotics problem is a U.S. problem and not a Bolivian problem and the U.S. pressure on the Bolivian government to control the industry was severely affecting the livelihood of many Bolivians. Notwithstanding the pressure of the media campaign, the Siles government continued strong pressure on narcotics traffickers. During 1984 and 1985 the Leopards were sent on frequent raids into villages in the Cochabamba Valley and elsewhere to root out the traffickers.(43) However, the heavy-handed tactics and rough treatment of peasants caused considerable resentment and hostility on the part of segments of the Bolivian society and brought into question the effectiveness of the methods being employed.(44)

Although pressure was continually applied on the traffickers, little effort was being made toward control of production and marketing of coca leaves. The United States again applied pressure when Senator Hawkins in March 1985 introduced a Bolivian Drug Eradication Bill to terminate all U.S. assistance if Bolivia failed to reduce coca leaf production by at least 10 percent. Eventually, the provisions of this bill were enacted in both the Senate and the House. To further emphasize U.S. resolve to control and reduce Bolivian production, it was announced that U.S. and Bolivian armed forces would participate jointly in military maneuvers in the Chapare from April 29 to May 8, 1985. These maneuvers were obviously an additional method of placing increased pressure on leaf producers and cocaine traffickers. The strong show of military force was also to be a means of impressing on the peasant farmers that the government meant business and that ultimately they would have to accept production controls.

The Bolivian outcry against any overt military action was strong; this time it came not only from the Chapare sindicatos and CSTUCB but also from many other sectors of the society. So adamant was public opinion that the

government immediately called the maneuvers off.(45) The United States reluctantly accepted the Bolivian decision and decided to postpone pressure for further narcotics control activities until after the 1985 elections.

The coming to power of the Pas Estensoro government in 1985 brought increased efforts on the part of the United States and Bolivia to control coca production and eliminate narcotics trafficking. President Estensoro reaffirmed Bolivia's desire to cooperate with the U.S. government in seeking measures to reduce coca cultivation and narcotics trafficking. Efforts against traffickers were greatly intensified when U.S. troops were invited to enter Bolivia in the summer of 1986 to assist the military and the U.S. trained anti-narcotics force, UMPAR, in attacking cocaine production and trafficking. The result of this operation, known as "blast furnace," was the destruction of numerous cocaine factories in the Chapare and Beni Regions via use of aerial photography to locate the factories and airborne strike forces in helicopters to raid the labs.(46) Although cooperation has occurred in the enforcement area, it has been hampered by wide-spread corruption among Bolivian enforcement personnel. Often major narcotics producers are alerted and the strike force finds only an abandoned factory with evidence of a hasty departure of the traffickers who have been informed of the raid by someone in the enforcement organization.(47)

Due to political resistance among the coca farmers in Bolivia, traditional users of coca in the highlands, and other elements of the population, the coca eradication campaign has not been implemented. Only 200 hectares out of the estimated 35,000 hectares in Bolivia were destroyed by eradication efforts in 1987. Moreover, the Bolivian farmers are requesting $2,000 per hectare as payment for the destruction of their fields.(48) The U.S. government has offered $200.00 per hectare. Therefore, unless strong political support can be generated among large numbers of the population, the Bolivian government is not likely to comply with agreements and accords signed with the U.S. to eliminate coca acreage. The threat of withdrawal of foreign aid, which accounted for $14 million in 1987 does not appear to be a sufficient inducement.(49)

CONCLUDING REMARKS

Coca leaf and cocaine production is a multi-million dollar industry in Bolivia. Since 1980 leaf producers have grossed an estimated average of $100 million each year and narcotic traffickers have earned an average of $700 million to $1.5 billion per year from the industry. The potential to generate income of this amount ensures that the narcotics industry has the potential to exert a significant impact on the economy and politics of Bolivia. Although the Bolivian government realized the political implications of the coca and cocaine industry because of U.S. pressure, it perhaps never fully realized the detrimental economic and social impacts until recently. The ability of the narcotics traffickers to move millions of dollars in and out of Bolivia at will has made it difficult for the government to effectively manage the internal economy and develop and carry out economic policies. The flow of narco-dollars out of the country during the period 1982-1983 as previously mentioned contributed to the rapidly rising inflation while the inflow of narco-dollars into the underground economy since 1984 has undoubtedly contributed greatly to loss of tax revenues and other forms of revenue. The great difficulty many businesses found themselves in may also have contributed to a heavy investment of narco-dollars in legitimate businesses which now poses problems with the business community and for present and future governments.

The political pressure applied by the United States on the government to control the cocaine industry became the foremost foreign policy issue between the U.S. and Bolivia during the 1980s. This pressure has led to difficult internal and external political decisions. Although the Bolivian government was able to garner sufficient internal support to go after the narcotics traffickers after 1983, it has been unable to gain sufficient support to implement production and marketing controls on coca leaves. Not only was there resistance by the powerful traffickers, there was also strong opposition by peasant organizations that represented the largest segment of the population. The inability to control leaf production and marketing meant that the cocaine industry could not be controlled.

Control of cocaine production in Bolivia probably cannot be achieved as long as leaf production is legal. The

fact is that farmers respond to the higher market prices paid by narcotic traffickers than the price paid by peasants who masticate them or buyers of leaves for the coca tea or medicinal industry. Any effort toward production control is seen by the farmers as something that will lower their income and standard of living. For this reason production controls and crop eradication have not yet been achieved and are not likely to occur without a strong use of force. The government, due to lack of significant public support for control measures, has been unwilling to use the necessary force to destroy farmers' crops. Therefore, it appears that the narcotics industry will flourish in Bolivia until public opinion strongly supports its elimination. Should this occur the industry would most likely move to a new area of Latin America where less pressure exists. There is some evidence that the upper Amazon of Brazil will be the area of future coca and cocaine production.(50)

On the positive side, there is a growing realization among many Bolivians that the industry poses a significant threat to the country and must be controlled or eliminated. To its credit, the government has taken positive steps toward this goal. The Paz Estensoro government is apparently committed to controlling and eliminating the industry. The critical issue is not over control and elimination of the industry but how hard and by what means to achieve this objective. Too strong an effort may result in deep resentment and pressure for a government more favorable to legalizing production. Strong pressures could also lead to the rise of leftist organizations in the coca producing regions and ties between coca producers, narcotic traffickers and these organizations. This has been the case in Peru where the Sendero Luminoso has been extremely active in the Rio Hualluga region and has carried out violent attacks on crop eradication teams.

There are no easy solutions for Bolivia but as has been indicated in the previous discussion, it will be difficult for the country to control its economic and political destiny until the government has control over the coca and cocaine industry.

REFERENCES

1. "The Supply of Illicit Drugs to the United States from Foreign and Domestic Sources in 1985 and 1986," National Narcotics Intelligence Consumers Committee, Washington, D.C., 1987, p. 35.

2. "Cocaine, The Evil Empire," Newsweek, February 25, 1985, p. 23.

3. "The Supply of Illicit Drugs to the United States from Foreign and Domestic Sources in 1985 and 1986," Op. cit., p. 35.

4. Ibid., pp. 26, 35.

5. Hudson, Tim, "The South American High, A Geography of Cocaine," Focus, American Geographical Society, Washington, D.C., 1985, p. 3.

6. "The Supply of Illicit Drugs to the United States from Foreign and Domestic Sources in 1985 and 1986," Op. cit., p. 36.

7. Ibid., p. 35.

8. "International Narcotics Control Strategy Report 1985 to the Committee on Foreign Relations and Committee on Foreign Affairs, United States Senate," Bureau of International Narcotics Matters, Department of State, Washington, D.C., February 1, 1985, p. 44.

9. Coram, Robert, "The Colombia Gold Rush of 1978," Esquire, September 12, 1978, pp. 33-37.

10. "The Supply of Illicit Drugs to the United States from Foreign and Domestic Sources in 1985 and 1986," Op. cit., pp. 40-41.

11. Velarde, Enrique, "El Consumo y Los Effectos de La Cocaina en la Sociedad Boliviana," Servicio Cultural e Informativo de los Estados Unidos, La Paz, Bolivia, April, 1984, p. 11.

12. D'Antonio, Arthur, Producción y Comercialización de la Coca, Universidad de San Simon Instituto de Estudios Sociales y Económicas, Cochabamba, Bolivia, 1972, p. 8.

13. Boscope, A. R., La Veta Blanca: Coca y Cocaina en Bolivia, Ediciones Aqui, La Paz, Bolivia, 1982, p. 11.

14. Gill, Lesley, Peasants, Entrepreneurs, and Social Change, Frontier Development in Lowland Bolivia, Westview Press, Boulder, Colorado, 1987, p. 183.

15. Ibid., p. 184.

16. "The Cocaine Wars," Time, February 25, 1985, p. 33.

17. Ibid., p. 33.

18. Healy, Kevin, "The Boom Within the Crisis: Some Recent Effects of Foreign Cocaine Markets on Bolivian Rural Society and Economy," Cultural Survival Report 23, Coca and Cocaine, Effects on People and Policy in Latin American, Cultural Survival, Cambridge, MA. 1986, pp. 104-105.

19. Orellana, A. C. and Zanaier, Juan Carlos, Bolivia: Coca y Cocaina, Los Amigos del Libro, La Paz, Bolivia, 1983, pp. 158-159.

20. Blanes, Jose and Flores, Gonzalo, Donde va El Chapare, Centro de Estudios de la Realidad Económica y Social, Impreso El Buitre, Cochabamba, Bolivia, 1984, p. 164.

21. Ibid., p. 164.

22. Healy, Op. cit., p. 119.

23. Ibid., p. 122.

24. Leishman, Katie, "How to Lose a Coke War," The Atlantic, May 1987, p. 24.

25. "Drug Money Laundering," Hearing Before the Committee on Banking, Housing, and Urban Affairs, US Senate 99th Congress, January 28, 1985, p. 140.

26. Gill, Op. cit., p. 187.

27. "Narcotics Intelligence Estimate 1984," The National Narcotics Intelligence Consumers Committee Washington, D.C., p. 25.

28. "On-Site Staff Examination of Narcotics Control Efforts in Bolivia," Senate Caucus on International Narcotics Control, 100th Congress, 1st Session, U.S. Government Printing Office, Washington, D.C. 1987, p. 2-7.

29. "International Narcotics Control Strategy Report, 1985", Op. cit., p. 49.

30. "The Supply of Illicit Drugs to the United States from Foreign and Domestic Sources in 1985 and 1986," Op. cit., p. 47.

31. "Narcotics-Related Foreign Aid Sanctions: An Effective Foreign Policy?", Op. cit., p. 10.

32. Cespedes, Jaime, "El Narcotráfico se ha Extendido de Modo Alarmante," in El Consumo y Los Effectos de La Cocaina en la Socieded Bolivia, Servicio Cultural e Informativo de los Estados Unidos, La Paz, Bolivia, April 1985, pp. 16-17.

33. Healy, Op. cit., pp. 115-118.

34. Ibid., pp. 116-117.

35. Cespedes, Op. cit., pp. 16-17.

36. Leishman, Op. cit., p. 24.

37. "Outline of Bi-Lateral Anti-Narcotics and Coca Control Strategy, Bolivia and the United States," US State Department, Washington, D.C., 1983.

38. Healy, Kevin, "The Rural Development Role of the Bolivian Peasant Sindicatos in the New Democratic Order," paper presented at XII International Congress of the Latin American Studies Association, Albuquerque, NM, April 20, 1985, pp. 26-27.

39. Ibid., p. 15.

40. Hawkins, Paula, "Targeting International Drug Trade," Foreign Policy Forum, US Senate Republican Conference, March 1984, p. 1.

41. Healy, Kevin, "The Boom Within the Crisis," Op. cit., pp. 135-136.

42. Newsweek, Op. cit., p. 33.

43. Ibid., p. 33.

44. Leishman, Op. cit., pp. 25-26.

45. Hoy, Editional International, La Paz, Bolivia, April 23, 1985.

46. "On-Site Staff Examination of Narcotics Control Efforts in Bolivia," Op. cit., p. 2-5.

47. Leishman, Op. cit., p. 24.

48. "On-Site Staff Examination of Narcotics Control Efforts in Bolivia," Op. cit., p. 12.

49. "Narcotics-Related Foreign Aid Sanctions," Op. cit., p. 26.

50. "The Supply of Illicit Drugs from Foreign and Domestic Sources in 1985 and 1986," Op. cit., p. 40.

COCA, MIGRATION AND SOCIAL DIFFERENTIAION IN THE BOLIVIAN LOWLANDS

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INTRODUCTION*

The dramatic increase of cocaine consumption in industrialized countries (particularly the United States) in the past decade has intensified the demand for coca leaves--the raw product from which cocaine alcaloid is extracted--in the Latin American lowlands. This has been especially the case of countries such as Peru and Bolivia where the coca leaf is deeply embedded in the Andean socio-cultural universe (Wagner 1978; Allen 1986), is widely acknowledged to have positive physiological effects (Carter et. al. 1981; Duke et. al. 1983 [1975]), and the production of which goes back thousands of years (Plowman 1984a, 1984b).

In Bolivia this heightening demand for and rising price of coca leaves, especially since the late 1970s, was paralleled by the worst economic crisis in recent memory which reached its peak by mid-1985. Both factors were, by the early 1980s, fueling a massive migration of highland-based peasants to the eastern lowlands, especially to the area known as the Chapare, east of the city of Cochabamba.

Migration to the eastern lowlands had in fact taken place much earlier. In Bolivia, as elsewhere in Latin

America, colonization or settlement of the sparsely populated interior lowlands has always formed an essential component of agrarian reform policies and rural development programs designed to offset increasing landlessness and poverty in heavily populated and politically volatile peasant regions (Thiesenhusen 1971, 1984, 1987). Bolivian governments actively promoted migration from the densely populated high plateau (altiplano) and intermontane valleys region (valles) to three major lowland areas: the steep valleys east of La Paz (yungas), the Chapare, and the area northwest of Santa Cruz.

What made migration to the Chapare since the mid to late 1970s so unique, however, was that it was spurred not by various state policies but directly by the international cocaine market. This resulted in the transformation of coca from a nationally marketed consumption crop, used primarily in chewing, to a valuable commodity crop, the by-products of which, such as coca paste and coca base (see Morales in this volume), are destined for export. And, as has occurred in similar "boom and bust" cycles, the incessant, almost inelastic demand for coca has led to a geometric increase in coca commodity production and levels of migration, a deepening monetarization of the local and regional economies, and alterations in the social relations of production.

I argue in this paper that a process of socio-economic differentiation is rapidly spreading in Bolivian colonization zones where the production and commercialization of coca is the primary economic activity of lowland settlers. The concept of differentiation, as used in this context, requires some clarification. Though I acknowledge the presence of stark wealth differentials between lowland colonists (what has been called "simple" differentiation), the use of the concept here has closer affinities with "social" differentiation, i.e. " ... inequalities arising from capital accumulation leading to capitalist class formation within the peasantry..." (Painter 1985:3; c.f. Bernstein 1982 [1977]:169-170). While I am not specifically positing the emergence of a capitalist class from within the lowland peasantry, the analytical focus of this paper is on the growing inequality in access to land in the Chapare and the concomitant development of hierarchically structured social relations of production. I explore some of the more specific and proximate factors

underlying the appearance of differentiation in the Chapare, its different manifestations and some of its consequences. Data are based both on fieldwork on migration to the Chapare carried out between early 1983 and mid-1985 in Sacaba(1), a high, inter-montane valley community located east of the city of Cochabamba, and on prior research efforts in the Chapare itself.

THE SETTING

Sacaba, with 253 households and 1,427 persons, lies thirty-five kilometers east of the city of Cochabamba, Bolivia's third largest city and capital of the Department of the same name. Lying in a frigid, high altitude environment, it overlooks the Sacaba valley to its west, one of the three major inter-montane valleys which make up the core agricultural area of the Department of Cochabamba. Sacaba is a former hacienda, the major part of whose territory (2,399 hectares of mostly unirrigated land), was expropriated shortly after the agrarian reform of 1953.

It is an overwhelmingly agricultural community. Though most households own livestock it is agriculture which demands the greatest amount of time and attention. A variety of Andean and non-Andean crops are grown in Sacaba. The potato is the most important crop, however, dwarfing the production of all others. It constitutes the dietary staple and principal cash crop within the community and is the crop which concerns Sacabeños the most when scheduling migration to the Chapare.

As elsewhere in the Andes, productive activities in Sacaba are allocated throughout complementary, vertically-arranged crop or production zones (Brush 1977; Mayer 1985). Sacabeños differentiate three partly overlapping crop zones, ranging from 3,050 to 3,900 meters above sea level, on the basis of availability of water, gradient, temperature, susceptibility to crop insects, and altitude. As one moves from the lowest to the highest crop zone, intensive agriculture on mostly irrigated land gives way to less intensive cropping on predominantly rain-fed fields. Most households have access to land in at least two crop zones, and many in all three.

Having land in different crop zones carries with it numerous advantages. In addition to spreading out crop risks, it results in a more even distribution of labor inputs throughout the year (Table 1). This facilitates migration to the lowlands. As is well-known, peak labor demands of highland and lowland crops only partially overlap (e.g. J. Weil 1980; C. Weil 1980; Collins 1984; Painter 1984). Coupled with a flexible sexual division of labor, access to land plots in complementary crop zones further enhances the ability of households to neatly interdigitate their labor between the variety of lowland and highland crops and their disparate labor requirements.

During the potato planting and harvest seasons in Sacaba labor needs usually surpass that available within many households (ayuda, yanapay). Additional labor is marshalled through various well-known mechanisms, such as reciprocal labor (aine), payment in kind (paga), wage labor (jornal), sharecropping (apartida), and an exchange of labor in return for the right to plant and harvest a furrow of land (tarpuja).

I've noted elsewhere (Sanabria 1988a) that, despite the increasing commercialization of the local economy as a result of migration to the Chapare, wage labor plays an insignificant role in the sowing and harvest of the two potato crops in the three crops zones. Reciprocal labor (ayuda and aine combined)--that is, labor mobilized without the intermediation of either cash or payment in kind, and which must be reciprocated--constitutes an overwhelming eighty-six percent of the labor deployed in the sowing of both irrigated and non-irrigated potato fields; of this amount, household labor provided an average of forty percent. During the harvest cycles the deployment of labor is slightly different. In the harvest of irrigated potato fields ayuda labor totaled sixty percent, followed by thiry-one percent from paga, while in that of rain-fed fields ayuda and aine each provided forty-one percent of the labor mobilized. The predominant role of reciprocal labor (or, for that matter, the virtual absence of wage labor and the relatively weak presence of paga) should of course not be interpreted as indicative of socio-economic equality (Orlove 1977). Yet what the data do strongly suggest is that a limited commoditization of labor has taken hold in Sacaba.

TABLE 1

COMPLEMENTARY POTATO PRODUCTION IN SACABA

ZONES	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY
Lower			(Plant)						(Harvest)			
Inter-mediate	(Plant)				(Harvest)						(Plant)	
Highest				(Harvest)						(Plant)		

THE BACKGROUND OF OUTMIGRATION

Although state interest in colonizing Bolivia's eastern lowlands can be traced to the mid eighteenth century, it was only after the agrarian reform law of 1953 that the first large-scale efforts at colonizing the lowlands finally materialized. These efforts were encouraged and bolstered by an increasing availability of United States development funds (Heilman 1982; Zeballos-Hurtado 1975; Wessel 1968). As elsewhere in Latin America, sponsorship of peasant settlements was accompanied by strong (and successful) efforts at encouraging the spread of agro-industrial enterprises (particularly in Santa Cruz) (Gill 1987). Lowland colonization and development were viewed by development (and agrarian reform) planners as a means of achieving a number of interrelated goals: the effective "integration" of the various ecological regions of the country; the attainment of a more equitable demographic distribution of the rural population; and self-sufficiency in key agricultural staples.

These goals flowed out of a socio-economic development model predicated upon two closely related premises. The first was that "traditional" highland agriculture was backward and thereby incapable of satisfying the basic needs of an expanding internal market and the growing expectations of the rural peasantry heavily concentrated in the altiplano and the valles. The second premise was that self-sufficiency in agricultural consumer staples, and the production of a surplus of these for export, could not be achieved by improvements of highland agriculture but rather through capital intensive and "efficient" agro-industrial enterprises in the lowlands.

Bolivia gained self-sufficiency in most consumer staples by the late 1960s. Yet the social and economic costs of this development strategy were high. Large land concessions and the enormous infusion of subsidized capital, particularly during the 1970s, led to the emergence and consolidation of huge agro-industrial concerns in Santa Cruz controlled by economically and politically powerful elites (see GEAI 1983; Gill 1987) who were later to play a significant role in the consolidation of the cocaine industry. The rural peasantry fared poorly, since not only were many migrants squeezed out of their land (Gill 1987) but

malnutrition in the altiplano and valles actually worsened during this period (Heilman 1982:262).

Large-scale agricultural enterprises never emerged in the Chapare as they did north-east of Santa Cruz, and migration to Santa Cruz outpaced that of the Chapare during the first decades of the colonization effort. By the late 1960s only fifty-four lowland settlements (colonias) had been established in the Chapare, with a population of about 24,000 (Henkel 1971:64).

Almost all Sacabeños who left for the lowlands shortly after the agrarian reform settled in Yapacani, one of the first settlements organized (in 1958) northwest of the city of Santa Cruz (see Stearman 1985). Over 100 Sacabeños (excluding those born there) obtained land or otherwise lived and worked in the Santa Cruz area between 1959 and 1979. Most were young males who either had not acquired a land grant (dotación) in Sacaba after the Agrarian Reform or had yet to receive their share of inheritance. The majority who arrived between 1969 and 1974 worked mainly as seasonal laborers in sugar and cotton enterprises. Most of the colonists eventually sold off their dotaciones, sometimes to fellow Sacabeños. By 1984 only thirty-six remained in Santa Cruz, all in Yapacani. Many who relinquished their land in Santa Cruz subsequently acquired state land grants or purchased their own land in the Chapare.

Other Sacabeños were at the time focusing their attention on the nearby Chapare which was also being "opened up" to agricultural colonization. Ecologically, the term Chapare refers to a tropical and sub-tropical rain forest of over two million square hectares extending parallel to and northeastward from the eastern flanks of the Andean mountain chain (Cordillera Oriental) (Henkel 1971). High temperatures, humidity and precipitation prevail in this area, part of which lies in the Amazon drainage basin (Pereira and Salinas 1982).

The first Sacabeños acquired land grants in two colonies, Ichoa and Isiboro, east of Villa Tunari; shortly thereafter additional lands became available in the nearby colony of Chimorè. By the early 1970s Sacabeños made up almost half of the afiliados (those with land titles to state

land grants) in all three colonies. Genealogical data suggest that these afiliados represented about one third of all households in Sacaba at the time. It is in this core area settled in the early 1960s and 1970s that the overwhelming majority of Sacabeños actively engaged in lowland crop production in the Chapare are concentrated.

The pace of migration to the Chapare colonies intensified as of 1972. In that year the paved all-weather road, which linked the city of Cochabamba with Villa Tunari and cut across Sacaba's north-western sector (substantially reducing the amount of time required to travel back and forth to the Chapare) was completed. In addition, the mid-1970s signalled a dramatic increase in the demand for coca leaves as a result of the intensification of the cocaine market and deteriorating economic conditions at the national level (see below). By 1978 the number of colonies in the Chapare had increased more than threefold (to 170) and 50,000 settlers were estimated to be residing there (Delaine 1979:72). By 1980 the number of colonies had jumped to 243 and the number of settlers affiliated to these colonies to about 68,000 (Blanes and Flores 1982:6).

The number of settlers or colonists provides an incomplete picture of the migratory movement to this area. The number of people actually flowing in and out of the Chapare was much greater, for the demand for labor had generated a large, floating, highly mobile population drawn from mostly from the valles and the altiplano. Blanes and Flores (1982:37-38), for instance, estimated that well over 400,000 persons traveled to the Chapare between January of 1981 and January of 1982 through the town of Sacaba alone.

This massive flow of peasants to the Chapare led, not unexpectedly, to numerous disputes over land boundaries, outright land invasions, and other conflicts throughout 1983 and 1984.(2) In this regard it is important to stress that only a very small portion of the Chapare can support unrestricted crop production. Despite its size and the lushness of its vegetation, it is widely recognized that soils in the Chapare are generally of poor quality (Figueras 1978:36), and that wide areas are subject to severe flooding (Henkel 1971). According to Henkel (1971:27) good soils are found only in well-drained alluvial fans and natural levees, and these are in short supply. In fact, it has been

estimated that only ten percent of its soils are apt for unrestricted agriculture (Henkel 1971:27; Figueras 1978:37). Furthermore, a good part of the available land in the Chapare is not readily accessible to newly arriving migrants. For example, The Isidoro-Secure National Park takes up thirty-nine percent of the territory, while tens of thousands of hectares have been allotted to "cooperatives" carved out of state land grants (Blanes and Flores 1982:1).(3) In fact, many of the conflicts mentioned above took place between peasant settlers and representatives of these "cooperatives", although others also took place between competing peasant groups.

I am not postulating the existence of an absolute shortage of land in the Chapare. Rather, I am suggesting that these land conflicts reflect a relative land scarcity, in which factors such as soils, the stage of the forest cover (e.g. high forest versus secondary forest growth) and/or strategic location, for example, determine local perceptions of what constitutes desirable land, especially for coca cultivation. For instance, in 1983 Sacabeños decided to maintain a year-round armed presence in Ichilo, a lowland colony near the Santa Cruz border (see below), after having driven off, on a number of occasions, other campesinos encroaching upon their lands. Land in Ichilo is very valuable, partly because its soils support a variety of crops, including coca. But it is also extremely valuable because the road currently under construction, and which will soon link the cities of Santa Cruz and Cochabamba via Villa Tunari, cuts across this colony. Having land in this colony would allow colonists, especially those with coca, easy access to Bolivia's two major cities, centers of coca paste manufacture and distribution, and markets of coca. It is this relative land scarcity in the context of expanding coca commodity production which I believe to be the necessary condition underlying the emergence of unequal social relations in the Chapare.

The increased migration to the Chapare on a national level was replicated in Sacaba. In the late 1970s many Sacabeños also gained land titles in Ichilo. By late 1984 over sixty-five percent of the colony's afiliados were from Sacaba and most top leadership positions were held by Sacabeños. Other Sacabeños have also recently obtained land in Ibabo, a colony north-east of Corani.

By late 1984 well over 200 Sacabeños were afiliados to a Chapare colony. Yet this number fails to adequately convey the intensity of migration to the Chapare from Sacaba, especially since 1980. Many Sacabeños resided permanently in the Chapare while others migrated to the Chapare but nevertheless claimed permanent residence in Sacaba. Furthermore some were affiliated to more than one colony (i.e. had multiple land grants). Others were not lowland afiliados despite migrating to and working in the Chapare. Members of still other households in Sacaba claimed "having" land in the Chapare (i.e. non-permanent access to land, such as sharecropping) but were not afiliados.

In order to account for these differences and gain a clearer picture of the extent of migration to the Chapare, I tabulated the number of members of discrete households in Sacaba who were either afiliados in a Chapare colony, or claimed "having" or "working" land there on a regular basis. The total amounted to 204. What this means is that members of no less than eighty percent of all households in Sacaba currently migrate to or otherwise have access to land in the Chapare. Well over half of these have permanent access to land there.

COCA PRODUCTION, LABOR REQUIREMENTS AND DIFFERENTIATION

Coca is a perennial shrub native to South America and present in a wide area of the South and Central American tropics as well as in parts of Africa, tropical Asia, India, Madagascar and Oceania (Plowman 1984a). Two species and four varieties of coca have been identified. Huánuco (or "Bolivian") coca is the most common variety throughout the eastern slopes of the Andes, northwestern Argentina and Ecuador's Pacific slope. Its presence has yet to be documented in Colombia or the Amazonian lowlands (Plowman 1984a; 1984b).

Coca shrubs are amazingly well adapted to lowland environmental conditions. According to C. Weil (1980:203) "The optimal growing conditions for coca include an altitude between 300 and 1800 meters above sea level, a

mean annual temperature between 18° and 26°C, and an average annual precipitation of about 100 mm, conditions which generally are met in the Chapare."(4) Shrubs--the seedlings of which can be harvested after only one year--can survive for more than twenty years with little or no fertilizers and, with proper weeding, can maintain relatively good production levels even in highly leached soils. Coca fields (cocales) do not rapidly deplete soil nutrients and they furthermore help to prevent soil erosion (J. Weil 1980:58). While coca can be grown in a wide variety of soils, it is highly sensitive to poor drainage (Duke 1976:331). Huánuco shrubs yield four harvests annually while other varieties produce two or three (Henkel 1986:5). The use of herbicides, pesticides and better management techniques can, however, raise the number of harvests to six (Plowman 1984a:81). Finally, leaf yields are higher than those of other varieties, and huánuco shrubs are less susceptible to disease and insects than other lowland cash crops, such as coffee and rice (Henkel 1986:5-6). It is this extraordinary adaptability of coca to ecologic conditions such as those present in the Chapare which partly accounts for the rapid expansion of coca production in this lowland region.

The virtual halt of foreign credit, the collapse of the mining and oil industries and widespread fiscal mismanagement had, by the early 1980s, led to a serious economic crisis in Bolivia. Symptomatic of this crisis was an annual rate of inflation which by mid-1985 had reached an astonishing 20,000 percent (Economist Intelligence Unit 1986:22). Hyper-inflation and massive monetary devaluations rapidly eroded the purchasing power of wages and led to an absolute decline in the living standards of the urban working class. By 1982, for instance, real per-capita income had regressed to the levels prevalent ten years earlier (Organization of American States 1984:1). Between 1983 and December of 1985 alone the parallel dollar equivalent of the monthly minimum urban wage fell from $42.80 to a mere $16.00, a drop of almost seventy percent (Economist Intelligence Unit 1986-87:8).

Inflation also had a devastating impact on peasant crops and income as their real value (with the exception of coca) failed to keep up with inflation.(5) Coca prices fluctuated a great deal but fared much better than those of, for example, potatoes. Inflationary tendencies and the

almost inelastic demand for coca leaves gave rise to price differentials which far outstripped that of potatoes. In February of 1985, for instance, one carga of coca leaves (fifty pounds) fetched a peasant over thirty times as much as one carga of potatoes (225 pounds).

The consolidation of the cocaine industry by Bolivian capitalists and sectors of the state apparatus, the spiraling rise in the price of coca leaves and the deteriorating economic conditions of traditional sectors of the Bolivian economy had led, as we have seen, to a mass movement of semi-permanent and seasonal migrants to the Chapare. It also resulted in a vertiginous increase in coca production.

Though available statistics are notoriously unreliable, all estimates point to an amazing increase in the levels of Bolivian coca production, particularly since the 1970s (Table 2).

A dramatic expansion of the acreage devoted to coca has paralleled the increase in crop production. Estimates of the acreage under coca production in the Chapare are even less reliable due to the intercropping of coca shrubs with other lowland crops, the absence of adequate surveys for the entire Chapare, and so forth (see Brooner 1981 for details). Table 3 provides some recent estimates of acreage under coca cultivation.

Coca is not only a labor-intensive crop but also one whose labor requirements far surpasses that of any other lowland crop. One hectare of coca requires over three times as much labor as that of other well-known labor-intensive crops such as coffee and rice (Table 4). Relatively small acreages of coca may consume the greater part of the labor devoted to agricultural tasks. Research undertaken in a Chapare colony in the late 1970s revealed that though the average farm had about seven-tenths of a hectare in coca (C. Weil 1980:190), colonists devoted over seventy-five percent of their time to this crop alone (J. Weil 1980:52).

We have noted that the incessant demand for and high prices of coca leaves had led to an expansion of the acreage under coca and a dramatic increase in the volume of production. It has also encouraged crop intensification

TABLE 2

ESTIMATES OF COCA LEAF PRODUCTION,
BOLIVIA, 1960-1984

YEAR	PRODUCTION*	SOURCE
1960	3,638	Flores and Blanes 1984:173
1963	4,800	IBID
1965	5,515	IBID
1967	6,460	IBID
1968	4,220	IBID
1970	6,000	IBID
1971	6,800	IBID
1977	19,000	Bascopé Aspiazu 1982:81
1978	35,000	Healy 1986:112
1980	27,500	Brooner 1981:VI
1981	64,000	IBID
1982	82,000	IBID
1984	104,000	Los Tiempos 1984e
	120,000	Los Tiempos 1984f
	152,000	Healy 1986:112
1985	120,000	Eastwood & Pollard 1986:261
1986	240,000	Kline 1987:22

*In Metric Tons

TABLE 3

ESTIMATES OF ACREAGE (IN HECTARES)
UNDER COCA PRODUCTION, CHAPARE

YEAR	ACREAGE	SOURCE
1978	15,900*	Los Tiempos 1984g
1980	16,000	Los Tiempos 1984h
	27,500	Brooner 1981
1981	35,319*	Los Tiempos 1984g
1982	45,000	IBID
1984	40,000	Los Tiempos 1984h
1985	35,000**	Los Tiempos 1985a
	40,000	Eastwood & Pollard 1986
	50,000	Los Tiempos 1985b

* Cites sources from the Direcion de Reduccion de Cultivo y Control de la Coca.

** Cites sources from the Secretaria Para el Desarollo del Tropico Boliviano.

TABLE 4

ANNUAL LABOR REQUIREMENTS IN MAN DAYS PER HECTARE
FOR SELECTED LOWLAND CROPS

CROP	C-P	%	P	%	W	%	H-P	%	TOTAL
Coca	42	16	8	3	120	33	90	35	260
Bananas	20	26	4	5	24	32	28	37	76
Rice	40	48	4	4	16	19	24	29	84
Yuca	30	50	2	3	12	20	16	27	60
Maize	30	62	2	4	12	25	4	8	48
Peanuts	39	43	4	6	16	23	20	28	70
Citrus	0	0	6	15	0	0	32	84	38
Coffee	24	26	7	8	20	23	36	41	88

C-P = Clearing/Preparation P = Planting W = Weeding
H-P = Harvesting/Processing % = Percentage Total Man Days

Source: Adapted from Henkel (1971:210). Recent estimates of labor requirements for one hectare of coca are strikingly similar to Henkel's (see Brooner 1981, p. 3-20).

in the Chapare--an increase in the number of coca harvests before the full maturation of the leaves (e.g. Blanes and Flores 1982:172) which, one may logically assume, has in turn led to an increase in the demand for labor. While the extent of this practice in the Chapare is not well known, Sacabeños have also taken to harvesting immature leaves and justify this practice on the basis of the high price of coca, incessant rumors of impending crop substitution programs and general political uncertainty. Though intensification can apparently occur without immediately endangering the reproductive viability of the coca shrubs themselves, the long-term effects are far less known.

The intensity of labor required for coca crop production would appear to be not only a function of the amount of land under cultivation or the intensity of crop harvests, but also of the different stages of crop production. Henkel (1971) has schematized the peak monthly activities for coca production. These are presented in Table 5.

Yet Table 5 is slightly misleading, since coca labor requirements are not constrained by a rigid seasonal schedule. Migrants may prefer to plant coca seedlings in September and October but sowing can actually take place at any time during the rainy season (December-March) (Henkel 1971:190) or even prior to the onset of the rains (Blanes and Flores 1982:216-217). The range within which planting can take place obviously shapes harvest labor needs. Not only can harvests span the agricultural year, but some authors even suggest that harvesting and weeding need not follow a rigid schedule at all: "Coca ... requires a considerable amount of labor for weeding and harvesting, but these are not subject to strict seasonality. Coca can be tended whenever there is no more pressing work to be done" (J. Weil 1980:141). Indeed, rather than being tightly constrained by the environment to plant coca two or at most three times throughout the year (and to harvest each planting every three months), colonists can--and do--in fact "spread out" their labor investments in the lowlands throughout most of the agricultural calendar (Eastwood and Pollard 1986:216).(6)

The foregoing discussion on coca expansion and intensification, and the related fact that labor for planting and harvests can be allocated throughout the year, is

TABLE 5

SEASONAL LABOR REQUIREMENTS OF COCA

DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.
H	H	W		H	W	L	L-H	L-H	P	P-H	W

L = Land Preparation
P = Planting
W = Weeding
H = Harvesting

Source: Adapted from Henkel 1971:207

important for understanding the nature of labor flows to the Chapare. Specifically, these factors have contributed to an increase in the permanent presence of Sacabeños in the lowland colonies.

Highland-lowland production complementarity (eased, as we have seen, by the Cochabamba-Chapare road) has enabled most migrants from Sacaba with land in the Chapare to maintain access to previously held land in their home community, and in fact most have done so. Sacabeños who have opted for this strategy minimize risks which a total reliance on lowland (but especially coca) crop production would entail. While coca fields are less susceptible to crop infestations than other lowland crops, environmental risks are nevertheless always present.(7) In addition, the ever-present possibility of forced coca crop eradication programs is both an environmental and political risk Sacabeños are aware of, constantly discuss, and have to contend with daily. Though mass destruction of the Chapare coca fields is unlikely, sporadic raids and elimination of selected fields have taken place. A colonist who alienates his land in Sacaba faces the prospect of losing his cash crop fields in the Chapare and thereby the loss of his entire subsistence base.

Seasonal migration to the Chapare, though still important, is slowly being replaced by a trend to spend considerably more time in the lowlands and devote additional time to lowland--but particularly coca--production. In addition, a large number of Sacabeños are spending more time in the lowlands than in the home community itself. During the household census, for example, seventy-five household heads, representing almost thirty percent of all households and almost forty percent of those households who had at least one member either working or with access to land in the Chapare (see above), reported at least one member spending more time in the Chapare than in Sacaba. This was invariably true of young, highly mobile migrant household heads, some of whom would spend four or five straight months in the Chapare.

In the absence of mechanization, coca crop expansion and intensification could not take place or at least would be severely constrained without access to an adequate labor supply. Unlike the Karen of Northern Thailand, whose

social organization inhibits households from massing sufficient labor for opium poppy cultivation (Hinton 1983), the lowland settlers in the Chapare eventually can and do mobilize enough labor to cover their needs.

Three factors have allowed Sacabeños with land in the lowland colonies to satisfy increasing labor requirements. One has been the de-intensification and the undermining of the social organization crop production in Sacaba itself. Though I cannot here go into the details of this process, de-intensification can be viewed as both a consequence of and an important factor in the expansion and intensification of lowland cultivation. Labor normally deployed in highland agricultural pursuits is redirected toward lowland crop production, especially that of coca. The second is the breakdown, as we have just seen, of seasonal migratory patterns, with more Sacabeños remaining on a semi-permanent or permanent basis in the Chapare. The last factor which has enabled Sacabeños to gain access to sufficient labor in the Chapare has been the influx of peasant laborers from different parts of Bolivia without secure access to land in the lowlands.

But what are some of the specific mechanisms by means of which labor is mobilized and deployed in the lowlands, and what can these tell us about newly emerging agrarian relations in the context of (coca) crop expansion and specialization?

Previous research in the Chapare has demonstrated that the type and amount of labor deployed in lowland settlements strongly correlates with land use changes. These changes reflect distinct productive strategies, which are in turn a function of access to capital, the intensity of cash crop production and the degree of insertion into market exchange circuits. Henkel (1971), for instance, distinguished three land use stages --pioneer fringe, commercial core, and zone of decay--each characterized by varying proportions of cash versus subsistence crops, land in fallow or in virgin forest, and types and amount of labor invested.

The essential features of the pioneer fringe--that of initial settlement--were the predominance of high forest growth, of subsistence over commercial crops and of household and reciprocal labor (ayuda and aine) over wage

labor. The commercial core displayed a higher proportion of cash crops (rice and coca), a decrease of high forest growth and a dramatic increase in the use of wage laborers and/or sharecroppers. In the zone of decay land fragmentation was widespread, as was soil erosion, low yields and a depletion of primary forest. The predominant type of labor employed here reverted to that of the pioneer fringe, i.e. primary reliance on household and aine labor.

From a slightly different perspective Blanes and Flores, relying on the average amount of land planted in coca as an index of crop specialization, recently distinguished 4 types of colonies--from "highly specialized" to those with little or no coca. "Specialized" colonies display larger households with more non-nuclear family members, a higher proportion of wage and/or contract laborers (who were hired for longer periods of time), more sharecroppers, access to more than one plot of land, and a greater degree of wealth (1982:86-107). Differential access to land, and varying proportions of it under coca is, then, strongly correlated with specific modes of access to labor. The location and time frame of the initial settlement of Sacabeños in Ichilo, Ichoa and Isiboro--east of Villa Tunari about 20 years ago--placed these colonies in Henkel's "Commercial Core" and Blanes and Flores' "moderately specialized" category (one to one and a half hectares in coca). Some colonists are more "specialized" in that they have more coca under cultivation.

In Ichoa, Isiboro and Ichilo(8) four broad, partly overlapping, categories of migrants can be distinguished on the basis of access to land and their structural position within local labor arrangements. These are: 1) original afiliados who have maintained relatively intact their dotaciones or (to a lesser extent) the few migrants who have bought entire dotaciones; 2) afiliados who have acquired small plots of land via inheritance or purchase; 3) sharecroppers; and 4) wage and/or contractual laborers (peones).

Members of the first category make up the minority of afiliados in Ichoa, Isiboro and Ichilo. Yet they have the most coca under cultivation, are the wealthiest and most influential, have access to the largest labor force, and employ the most complex means of accessing labor.

Zacarias is representative of this category. He has twenty hectares of land in Ichoa of which, by his own account, some two to three hectares are under coca. Childless, Zacarias relies on aine for a part of his labor needs and also employs a criado (literally "servant") who is permanently attached to his household.(9) He relies to a much greater extent on wage or contractual laborers hired directly by him, especially for the clearing of land, weeding and harvesting. Zacarias' principal source of labor stems, however, from the numerous sharecroppers he has on his land, some with whom Zacarias maintains fictive kin ties (compadrazgo). The number of sharecroppers varies from year to year but usually ranges from nine to twelve, some having been sharecropping Zacarias's land for several years. This fact is consistent with data gathered by Blanes and Flores (1982:175) which stresses that permanent sharecroppers are found in twenty percent of the more specialized colonies. Most of the sharecroppers have spouses and children. They constitute independent households in the sense that they form discrete units of production and consumption.

In addition to their own household labor his sharecroppers also rely on outside sources, particularly during the coca harvest. Extra-household labor is primarily drawn from kin networks, such as relatives from their home communities.

Zacarias's sharecroppers often spend time in Sacaba, residing in his large, two-story house which, incidentally, they are remodeling. One group of three sharecroppers along with their spouses and offspring once remained in Sacaba for about a month. While in Sacaba they perform a variety of tasks. They may help Zacarias in preparing his land for the planting of potatoes or clean the ditches which irrigate his fields.

Ponciano is in a less enviable position than Zacarias. He has but one hectare of land under coca, but on the other hand he can rely on his two teenage sons to help him during the weeding and harvesting of coca. His wife rarely travels to the Chapare, preferring instead to remain in Sacaba with the younger children. Like Zacarias, Ponciano also has sharecroppers, each with two catos (one cato equals 1600 m^2) of coca. He can also count on help from his

brother (and his brother's sharecroppers) who has land in the nearby colony of Isiboro. Ponciano also enjoys the services of an elder criado who resides permanently in his house in Ichoa and who, among other things, looks after his coca fields when he is away.

Afiliados who have acquired plots of land through inheritance, along with sharecroppers, are many times young and highly mobile migrants of recently constituted households. In the Chapare they normally do not divide their time equally between subsistence and cash crops but are, in fact, specialists. They may have tiny housegardens which provide them with some subsistence crops. But by and large they are fed by the owner of the land, buy their subsistence staples from others or bring them down from Sacaba. Their land plots are small, ranging from one to three catos, and almost always totally under coca. Furthermore, they have access to only minute plots of land in Sacaba. For example, Leovigildo, eighteen years old, sharecrops from his godfather (padrino) just one cato of coca land in Isiboro. When travelling to the Chapare he leaves behind in Sacaba his wife and his one year-old son. In Sacaba, Leovigildo has inherited 2,000 m^2 of irrigated land and a little over 2,600 m^2 of rain-fed land. Similarly, Marcial, twenty-six years old with three children under five, sharecrops one half-hectare of land in Chimore, of which two catos (or about sixty percent) are in coca. In Sacaba, he has inherited 1,530 m^2 of irrigated crop land and 2,000 m^2 of rain-fed land.

Due to the small plots of land to which they have access in the Chapare, these afiliados normally do not employ sharecroppers but rely instead on reciprocal labor arrangements and, especially during the harvests, on laborers which are paid in kind or cash. (An interesting exception would seem to be Emilio, who claimed having three catos of coca and four sharecroppers. It is likely that he in fact had more coca land.) Some of these laborers may be sharecroppers themselves on someone else's land. For instance Leovigildo regularly relies on four or five fellow sharecroppers who also work the land of his godfather; since he pays them in cash or in kind, he refers to them as peones. Afiliados may also sharecrop the land of others (that of parents, for instance).

Though many exceptions do occur, close kinsmen--siblings, cousins, nephews, and so on--are preferred as sharecroppers. It is believed that they are more reliable and can be "trusted." Zenobio, for instance, has had the same sharecroppers--all brothers and sisters-in-law--since 1979. Valentin sharecrops his one hectare of coca with his brother Cristóbal and his nephew Fermin.

As noted above, afiliados as well as their sharecroppers mobilize considerable amounts of additional labor, particularly during harvest time. Most peones form part of the large, mobile population with no secure access to land mentioned above. Most employed during harvest times are non-Sacabeños. Yet Sacabeños also form part of this labor pool, and are drawn especially from households in Sacaba who do not have secure access to land in any of the Chapare colonies. In addition to working the land of afiliados in the Chapare, peones may also sharecrop their land in Sacaba. A common strategy of many of these is to work with various colonists, mostly kinsmen, with the hope of securing some sharecropping arrangement. Peones, as already mentioned, may be remunerated in cash. In fact, in the late 1970s J. Weil noted that labor mobilized through various forms of cash transaction accounted for a full thirty-eight percent of all labor deployed in a Chapare colony (1980:330). Yet, as Blanes and Flores (1982:111) have more recently noted, and the examples above have illustrated, peones are increasingly paid in coca.

Some afiliados, like Germán, may hire twenty or thirty peones for a few weeks at most. But many are being hired for longer periods of time. One Sacabeño, for instance, reported employing during 1983 ten peones, five of which remained for one month and the others for over three months.

J. Weil notes that aine is an important means of gaining access to labor since it accounted for forty-two percent of all "exchange" labor mobilized within his sample (1980:330). Unfortunately, it is not at all clear what proportion was actually given or received by more prominent, wealthier colonists (afiliados). In any event, it should be pointed out that, at least among Sacabeños, peones can also be mutually shared or "loaned" between

afiliados and between these and sharecroppers in order to satisfy reciprocal labor obligations such as aine.

It is pertinent to note here that labor prestations can "circulate" between Sacaba and the lowland colonies. Sharecroppers and/or wage laborers can form part of this system of exchanges. An example of this would be an exchange of water and labor, wherein one party enjoying access to water for crop cultivation in Sacaba provides non-kin laborers (peones) from the Chapare for the other party's sowing or harvest.

In addition, a lowland-highland circulation of aine labor can take place. This basically involves the incurring and/or payment of aine obligations in the Chapare. A colonist, for instance, may incur an aine obligation while sowing or harvesting his potato crop in Sacaba and repay that obligation in a Chapare colony, either with his own labor or through the use of his peones. With a highly mobile population, the majority of whose members enjoy some type of access to land both in Sacaba and in various Chapare colonies. This variant of aine is especially advantageous given its remarkable degree of flexibility in the mobilization of labor.

This practice also leads to intense and lasting economic cooperation between closely linked households which would otherwise be difficult to attain. For instance, sons more or less permanently settled in the Chapare may not, for any number of reasons, be able to cooperate with their fathers' potato harvests in Sacaba. Nevertheless, when in Sacaba they may offer aine to other households whose members then pledge to reciprocate when the latters' fathers require the labor in Sacaba.

Furthermore prominent afiliados with large and/or multiple dotaciones can rely on extended kinship networks and/or utilize payment in coca, or the promise of a sharecropping arrangement, to amass considerable labor for further expansion of cultivated acreage. Wilfredo, with land in Isiboro and one of the most powerful and wealthiest Sacabeños, is a prime example. Wilfredo, his teenage and unmarried son, his father and his four brothers constitute five separate households in Sacaba. Each is in possession of a dotación in Ichilo, a total of 140 hectares. They go out

of their way, perhaps more than other closely-linked households, in attempting to coordinate their productive activities both in Sacaba and the lowland colonies. In the lowlands, for instance, it is common to see them travel together in Wilfredo's truck enroute to Ichilo where they share their labor in clearing the forest cover on each other's land. Each member of Wilfredo's extended family may be accompanied by contractual and/or wage laborers who are shared among themselves. Indeed, Wilfredo, his father and his four brothers constitute an example of what Long and Roberts (1984:217) have called a "confederation of households."

In addition to payment in coca, Wilfredo also employs the tactic of promising a sharecropping arrangement in order to attract and retain additional labor, thus permitting him to expand his scale of operations. Not only is Wilfredo able to secure the labor of the sharecropper himself, but also that of his household and others (including wage laborers) which he will be willing and able to recruit. This bears a striking resemblance to what occurs in the Ecuadorian highlands where sharecropping is used as a means of tapping sources of labor which, ultimately, results in capital accumulation (Lehmann 1986). As a potential source of land and wealth--and with a large labor force within their orbit--some colonists can attain a remarkable degree of prominence. Indeed, some are being referred to by Sacabeños as <u>patrones</u>.

Wilfredo is in an enviable position vis-a-vis Edmundo who, while one of the largest peasant landowners in Sacaba, is unable to mobilize sufficient labor to rapidly expand crop production on his land in Ichilo. Part of the reason for this is the small size of Edmundo's household: his wife usually stays behind to take care of their two small children. Furthermore, Edmundo, unlike Wilfredo, has more difficulties in gaining labor from his close kin. Edmundo and his brothers, for instance, rarely exchange <u>aine</u> in Sacaba, or otherwise coordinate or mutually support each other in productive tasks. Lastly, virtually all his income is drawn from potato production in Sacaba, and he thus cannot compete with others who offer high wages either in cash or in coca to attract labor. Edmundo attempts to compensate for his relative lack of labor by using a gasoline-powered chain saw for the felling of trees. Yet he

readily admits that this is not sufficient to offset his lack of labor power, particularly when it comes to weeding.

There is, of course, a great degree of social and geographical mobility in the Chapare. Many wage and contractual laborers and/or sharecroppers can and do attach themselves to different households, gain access to their own land grants, buy their own land, or simply return to their home communities. Yet it has been previously suggested that a relative scarcity of land currently exists in the Chapare. Furthermore, the vertiginous rise in coca prices and the greater circulation of monetary wealth has certainly been accompanied by a corresponding increase in the price of land (c.f. Blanes and Flores 1982: 189-190). This in effect has put the purchase of land outside the reach of newly arriving migrants. Lastly, it should be remembered that--at least up to mid-1985--the huge influx of peasants to the Chapare showed little signs of abating, thereby increasing the availability of the labor supply in the area and a corresponding pressure on available land. Should these conditions continue to prevail it is, I think, safe to posit that, while the composition of the labor force of prominent colonists may display some signs of internal instability in the short-run, the long range tendency is for it to grow in size and complexity and to become more rigidly hierarchical.

On the basis of data gathered in the late 1970s J. Weil hypothesized that the "... emergence of a rural proletariat is perhaps the most probable scenario [in the Chapare]" (1980:406). It is precisely my argument that, the apparent presence of an egalitarian ideology notwithstanding (C. Weil 1980; J. Weil 1980), such a process of differentiation, accompanied by growing disparities in levels of wealth (e.g. J. Weil 1980:424; C. Weil 1980:247), is presently underway in the Chapare. The greatest potential for increasing differentiation, however, may indeed lie in lowland settlements where the processing of coca leaves into coca paste is widespread (c.f. Barbara-Leons 1986).

DISCUSSION

How are we to conceptualize these lowland migrants who own their means of production and who, through various mechanisms, are willing and able to mobilize large amounts of extra household labor for the expansion of coca commodity production?

Conceptualizing them as simple peasants in the Redfieldian or Chayanovian sense--rural cultivators analytically conceived as outside the orbit of market exchange, whose productive activities are geared almost exclusively towards subsistence, and who rely primarily on household labor--simply will not suffice.(10) This perspective is clearly inadequate for an understanding of the newly emerging agrarian structure of the Chapare lowlands. We have seen that production in the Chapare is increasingly oriented toward that of a lucrative commodity, ultimately destined for international markets, and linked to neighboring highland areas primarily through the medium of intense labor flows. This spread of commodity production has ushered in increasingly complex agrarian relations hinging on access to labor and land by prominent colonists.

An alternate approach is the body of literature which focuses on the study of "petty (or "simple") commodity production" (PCP). The study of PCP suffers a number of drawbacks. One, for instance, is the profusion of terminological categories employed to describe what would appear to be similar units of analysis.(11) Another, more serious drawback is the lack of consensus on some of the defining features of PCP, beyond the generally accepted following points: 1) petty commodity producers are rural cultivators tightly (though imperfectly) integrated into the capitalist market through the production of commodities;(12) 2) they operate in a socio-political environment where the factors of production--land, labor and capital--can circulate freely (Moore 1984:13; de Janvry 1981:97; Goodman and Redclift 1982:84); 3) they own or at least control their means of production (Goodman and Redclift 1982:81; Moore 1984:13; de Janvry 1981:97; Kahn 1986:59); and 4) that therefore the household retains its role as the major productive decision-making unit (Roseberry 1986).

Beyond these minimally agreed-upon points all sorts of disagreements abound. For example, while many equate peasants with simple commodity producers, others, like Friedmann (1980:165-66), propose that the former term should be used for those only partially integrated to the market. In fact, she strongly suggests that PCP be circumscribed to capitalist farmers--such as those in the North American plains. The distinction is important since it is intimately bound with the issue of wage labor, often used to differentiate between capitalist and non-capitalist forms of production.(13) While Gibson and Neocosmos (1985, cited in Kahn 1986) and Stein (1984:279), for instance, emphasize that the absence of wage labor is a distinguishing trait of petty commodity producers, C. Smith (1984:80), Cook (1982; 1986:54), Friedmann (1986:125), Smith and Barker (1986:5) and Lehmann (1982:138) disagree, pointing to numerous examples in which extra-household wage labor is regularly employed.

Despite these theoretical and methodological difficulties, studies of PCP offer distinct advantages over other frameworks. It forces us to seriously reconsider the notion that peasants display an intrinsic "logic" or "rationality" towards "subsistence" and a consequent aversion towards integration into the market or towards capital accumulation itself (Lehmann 1986). The extent to and the conditions under which peasants engage in what would appear to be capitalist-like activities should be a matter of empirical determination. The study of these conditions, in turn, forces us to look very closely at how local, regional and even international factors jointly explain production and exchange relations at the local level (C. Smith 1985).

The previous analysis has shown that many lowland colonist households share attributes generally ascribed to PCP. By emphasizing the cultivation of coca, a lucrative commodity which quickly enters an essentially capitalist market, they are clearly tightly integrated to the market at the levels of both exchange and production. They rely to varying degrees on household labor but also increasingly employ wage and other forms of remunerative labor. Yet the integration to the market is incomplete. Despite an increasing emphasis on commodity production there is no evidence that these colonist households require an intrinsic rate of profit in order to survive. They maintain con-

siderable control over their means of production, and capital investment in the productive sphere is negligible. Furthermore, though they strive to produce a commodity to accumulate capital, they do not usually forego the production of subsistence crops: aware of the risks which total reliance on the market convey, many continue to cultivate consumption crops in the lowlands and, as discussed in the first part of this paper, in their highland home community.(14)

The structural features of analogous units of production elsewhere have led some authors to view these as "enterprises" (e.g. Cook 1982; Lehmann 1982) capable of expansion and accumulation. Yet the notion of enterprise, at least in the context of this paper, is insufficient. This is so because it fails to adequately convey the fact that prominent colonist households have incorporated within their orbit not only members of other households (kin and non-kin alike) but entire households as well. I would therefore suggest that these expanding lowland production units, centering on core households able to attract and retain labor from other (and sometimes entire) households be conceptualized as multi-household enterprises.

CONCLUSIONS

The market for cocaine and coca paste now flourishing in Bolivia has a relatively short history. Henkel (1971), who did fieldwork in the Chapare in the mid-1960s, only once mentions cocaine, which suggests that at this time its demand was not yet widespread. By the mid to late 1970s the manufacture of coca paste had accelerated to an unheard of degree and was rapidly expanding throughout many lowland areas.

Several interrelated factors accounted for the expansion and consolidation of this "underground" industry. By the mid 1970s a dramatic drop in sugar and cotton prices occurred (see Stearman 1985; Gill 1987) and as a result agro-industrial concerns in Santa Cruz drastically cut back on production.(15) At about the same time the serious flaws inherent in the economic development model followed since 1964 became evident (see Organization of American States

1984). One result of this was that Bolivia was increasingly incapable of meeting interest payments on its growing foreign debt and foreign loans--which had been the source of much of the credit which was in turn allotted to agro-industries in the Santa Cruz area--began drying up.

These two interrelated factors--a sharp decline in the price of key export crops and a shortfall of capital transfers through official governmental channels--prompted the agro-industrial capitalists of Santa Cruz to turn to the illegal cocaine industry as a substitute for traditional sources of capital inflows. In effect, the 1970s witnessed a shift from small-scale cottage-like coca paste enterprises in isolated areas in the Chapare to large-scale operations centered in and around the city of Santa Cruz under the aegis of the entrenched elites (Bascopé Aspiazu 1982) and under the protection of sectors of the military (Dunkerley 1985:292-344).

The agro-industrial elites of Santa Cruz were decisive in organizing and consolidating cocaine operations in lowland Bolivia (c.f. Henkel 1987, Gill 1987). Through their power, wealth and influence Santa Cruz capitalists have successfully shielded themselves from anti-drug operations and have been able to easily transfer enormous amounts of capital between the "legal" and "illegal" spheres of exchange--without a doubt under the complacent eyes of state officials. The well-known use of cotton loans for financing cocaine operations (Gill 1987:185-186), or the Central Bank's current "no questions asked" policy in purchasing dollars (Economic Intelligence Unit 1986:23), illustrate the extent to which a "compenetration" (Henman 1985:155) of the cocaine establishment and the state and legal apparatus has taken place.

The expansion and consolidation of the cocaine market coincided with the complete deterioration of economic conditions at the national level. State policies directed at attenuating this economic crisis backfired, resulting in an absolute decline of living standards in urban and rural areas alike.

It is within this political and economic context that increasing migration to the Chapare, a prime coca-producing lowland region of Bolivia, has taken place. I have argued in

this paper that the spread and intensification of labor intensive coca commodity production in the Chapare, coupled with the flow of migrants to this region and the appearance of relative land scarcity, is rapidly leading to social differentiation. This process is not one in which peasants are slowly dispossessed of their means of production, as has taken place in other regions of frontier settlement (c.f. Gill 1987; Bunker 1985; Brass 1983; Roberts 1975; Collins 1986; Collins and Painter 1986:17-19; Schmink 1981). Rather, this process pivots on the fact that access to what is viewed as valuable land is progressively restricted to incoming migrants.

Differentiation manifests itself through the appearance of expanding colonist enterprises who are able, through the payment of cash wages, coca, or by sharecropping out part of their land, to attract and retain considerable amounts of labor. Access to this labor, through complex and partly overlapping arrangements, has in turn allowed these lowland households to increase the intensity and scale of their operations. These large and internally differentiated production units centering on core households are here conceptualized as multi-household enterprises. Cash crop production, in conjunction with labor availability and relative scarcity of land, are the principal factors ushering in socio-economic differentiation in the Bolivian lowlands.

NOTES

* I am grateful to Hermine ("Minka") de Soto (Department of Anthropology, University of Wisconsin-Madison) and to Dr. Edmundo Morales for valuable advice in the preparation of this paper. I alone remain responsible for the contents, however.

1. All personal and place names used throughout this article are fictitious.

2. Los Tiempos 1983a, 1983b, 1983c, 1983d, 1983e, 1983f, 1984a, 1984b, 1984c, 1984d.

3. I know of no study of the socio-economical organization of these "cooperatives." J. Weil (1980:93), however, has stated that these regularly employ wage labor.

4. See Duke (1976) for slightly different estimates of optimum growing conditions for coca.

5. Dandler (1984) has emphasized that the decline in the real value of peasant crops has occurred since the late 1960s; inflation in the 1980s simply accentuated this decline.

6. J. Weil, for instance, has noted that activities directly related to coca production "occupied the settlers throughout the entire year" (1980:224; see also his Figure 5.4, pages 225-226).

7. The drought of 1982-1983, for example, not only led to massive destruction of highland crops but also to substantial damage to lowland crops, including coca.

8. But not in Ibabo or Chimoré where settlement is more recent and crop production not as widespread.

9. The most interesting example of the use of criados by wealthy colonists is that of Pedro, who employs a full-time criado as a driver (chófer) for one of his two vehicles.

10. This "peasantist" view conceptualizes peasants as "... inserted in a non-capitalist mode of production which revolves around the intensive use of family labor, the non-accumulation or investment of capital, and simple reproduction (i.e. the quest for subsistence and replacement ...)," (Cook 1986:83-86).

11. For instance, in just two pages Goodman and Redclift (1982:91-92) speak of: "peasant commodity producers", "petty commodity producers", "peasant producers", "peasant simple commodity producers", "peasant family-labour enterprises", and "independent family-based peasant enterprises."

12. Commodities for the market can be agricultural, such as wheat among North American farmers (Friedmann 1980), or non-agricultural, such as weavings (C. Smith 1984), grinding stones (Cook 1982, 1986) or steel implements (Kahn 1980) produced by peasants.

13. "[T]o accumulate capital, a peasant ... must become a permanent employer of wage labour ..." (Lehmann 1982:148).

14. Although few migrant Sacabeños have ceased to grow consumption crops in Sacaba, there is unmistakable evidence that the production of these is declining (Sanabria 1988b).

15. As late as 1986, for instance, the area planted in cotton in the Santa Cruz lowlands was only one third of that ten years earlier (Economist Intelligence Unit 1986:23).

REFERENCES

Allen, Catherine A. (see also under Wagner, C.)
1986 "Coca and Cultural Identity in Andean Communities." In Coca and Cocaine: Effects on People and Policy in Latin America. Pp. 35-48. Edited by Deborah Pacini and Christine Franquemont. Cambridge, MA: Cultural Survival, Inc. and Latin American Studies Program, Cornell University.

Barbara-Leons, Madeline
1986 "Prospering in Times of Crisis." Paper presented at the 1986 Meeting of the American Anthropological Association.

Bascopé Aspiazu, René
1982 Coca y Cocaína en Bolivia. La Paz: Ediciones "Aquí".

Bernstein, Henry
1982 "Notes on Capital and Peasantry." In Rural Development: Theories of Peasant Economy and Agrarian Change. Pp. 160-177 (Originally published in 1977). Edited by John Harriss. London: Hutchinson University Library.

Blanes, José and Gonzalo Flores
1982 Compesino, Migrante y "Colonizador": Reproducción de la Economia Familiar en el Chapare Tropical. La Paz: CERES.

Brass, Tom
1983 "Review Article: Of Human Bondage: Campesinos, Coffee and Capitalism on the Peruvian Frontier." Journal of Peasant Studies Vol. 11, No. 1:76-88.

Brooner, W.
1981 Bolivian Coca: Technical Evaluations of Recent Aerial Survey Projects in the Chapare of Bolivia. Berkeley: Earth Satellite Corporation.

Brush, Stephen
1977 Mountain, Field and Family: The Economy and Human Ecology of an Andean Village. Philadelphia: University of Pennsylvania Press.

Bunker, Stephen
1985 Underdeveloping the Amazon: Extraction, Unequal Exchange and the Failure of the Modern State. Urbana: University of Illinois Press.

Carter, William, Mauricio Mamani and José Morales
1981 "Medicinal Uses of Coca in Bolivia." In Health in the Andes. Pp. 119-150. Joseph W. Bastien and John M. Donahue, eds. Washington: American Anthropological Association.

Collins, Jane
1984 "The Maintenance of Peasant Coffee Production in a Peruvian Valley." American Ethnologist 11(3):413-437.

1986 "Smallholder Settlement of Tropical South America: The Social Causes of Ecological Destruction." Human Organization Vol. 45, No. 1:1-10.

Collins, Jane and Michael Painter
1986 Settlement and Deforestation in Central America: A Discussion of Development Issues. Binghamton, NY: Institute for Development Anthropology. Cooperative Agreement on Human Settlements and Natural Resource Systems Analysis. Working Paper No. 31.

Cook, Scott
1982 Zapotec Stoneworkers: The Dynamics of Rural Simple Commodity Production in Modern Mexican Capitalism. Washington: University Press of America.

1986 "The 'Managerial' vs. the 'Labor' Function, Capital Accumulation and the Dynamics of Simple Commodity Production in Rural Oaxaca, Mexico". In Entrepreneurship and Social Change. Pp. 54-95. Edited by Sidney Greenfield and Arnold Strickon. Lanham, MD: University Press of America.

Dandler, Jorge
1984 "El Desarollo de la Agricultura, Políticas Estatales y el Proceso de Acumulación en Bolivia." Estudios Rurales Latinoamericanos Vol. 7, No. 2:81-149.

de Janvry, Alain
1981 The Agrarian Question and Reformism in Latin America. Baltimore and London: The John Hopkins University Press.

Delaine, Bernard
1979 Coca Farming in the Chapare, Bolivia: A Form of Collective Innovation. Ph.D. dissertation, Sociology, Saint Louis University.

Duke, J. A.
1976 "Crop Diversification in Lowland Bolivian Hills." In Hill Lands. Pp. 331-335. Edited by J. Luchok, et. al. Morgantown, West Virginia: University Books.

Duke, James A., David Aulik and Timothy Plowman
1983 "El Valor Alimenticio de la Coca." In Ensayos Científicos Sobre la Coca. Pp. 71-78. Edited by William E. Carter. La Paz: Los Amigos del Libro. (Originally published in Botanical Museum Leaflets, 1975).

Dunkerley, James
1984 Rebellion in the Veins: Political Struggle in Bolivia, 1952-1982. London: Verso.

Eastwood, D. A., and H. J. Pollard
1986 "Colonization and Coca in the Chapare, Bolivia: A Development Paradox for Colonization Theory." Tijdschrift Voor Economische en Sociale Geografie 77(44):258-268.

Economist Intelligence Unit
1986 Country Report: Peru, Bolivia. London: The Economist Intelligence Unit.

1986-87 Country Profile: Bolivia. London: The Economist Intelligence Unit.

Figueras, Juan Antonio
1978 El Chapare: Sus Recursos y Sus Usos. La Paz: Universidad de Florida, Mision Agricola en Bolivia. Documento de Trabajo No. 7.

Flores, Gonzalo and José Blanes
1984 ¿Dónde Va el Chapare? Cochabamba: CERES.

Friedmann, Harriet
1980 "Household Production and the National Economy: Concepts for the Analysis of Agrarian Formations." Journal of Peasant Studies 7(2):158-184.

1986 "Postscript: Small Commodity Production." Labour, Capital and Society 19(1):117-126.

GEAI (Grupo de Estudios Andrés Ibañez)
1983 Tierra, Estructura Productiva y Poder en Santa Cruz. La Paz: Centro de Estudios Andres Ibañez.

Gibbon, P. and M. Neocosmos
1985 "Some Problems in the Political Economy of African Socialism." In Contradictions of Accumulation in Africa: Studies in Economy and the State. H. Bernstein and B. K. Campbell, eds. Beverly Hills: Sage Publications.

Gill, Lesley
1987 Peasants, Entrepreneurs, and Social Change: Frontier Development in Lowland Bolivia. Boulder: Westview Press.

Goodman, David and Michael Redclift
1982 From Peasant to Proletarian: Capitalist Development and Agrarian Transitions. New York: St. Martin's Press.

Healy, Kevin
1986 "The Boom Within the Crisis: Some Recent Effects of the Foreign Cocaine Markets on Bolivian Rural Society and Economy." In Coca and Cocaine: Effects on People and Policy in Latin America. Pp. 101-144. Edited by Deborah Pacini and Christine Franquemont. Cambridge, MA: Cultural Survival, Inc. and Latin American Studies Program, Cornell University.

Heilman, Lawrence Charles
1982 U.S. Development Assistance to Rural Bolivia, 1941-1974: The Search for a Development Strategy. Ph.D. dissertation, History, The American University.

Henkel, Ray
1971 The Chapare of Bolivia: A Study of Tropical Agricultural in Transition. Ph.D. dissertation, Geography, University of Wisconsin-Madison.

Henkel, Ray
1986 "Regional Analysis of the Latin American Cocaine Industry." Paper presented at the Conference of Applied Geographers, West Point, NY.

Henman, Anthony
1985 "Cocaine Futures." In Big Deal: The Politics of the Illicit Drugs Business. Pp. 118-189. Anthony Henman et. al. eds. London: Pluto Press.

Hinton, Peter
1983 "Why the Karen do not Grow Opium: Competition and Contradiction in the Highlands of North Thailand." Ethnology XXII (1): 1-16.

Kahn, Joel
1980 Minangkabau Social Formations: Indonesian Peasants and the World Economy. Cambridge University Press.

Kahn, Joel
1986 "Problems in the Analysis of Peasant Ideology. Labour, Capital and Society 19 (1):36-69.

Kline, David
1987 "How to Lose the Coke War." The Atlantic 259 (5):22-27.

Lehmann, David
1982 "After Chayanov and Lenin: New Paths of Agrarian Capitalism." Journal of Development Economics 11:133-161.

1986 "Sharecropping and the Capitalist Transition in Agriculture: Some Evidence from the Highlands of Ecuador." Journal of Development Economics 23 (2):333-354.

Long, Norman and Bryan Roberts
1984 Miners, Peasants and Entrepreneurs: Regional Development in the Central Highlands of Peru. Cambridge University Press.

Los Tiempos (Cochabamba)
1983a Colonizadores del Chapare exigen solución al problema de terrenos. 11 December.

1983b Empresarios privados del trópico retomarán sus terrenos invadidos. 9 December.

1983c Disponen desalojo de tierras ocupadas en forma arbitraria. 30 October.

1983d Campesinos del Chapare denuncian nuevas ocupaciones de propiedades. 23 July.

1983e Una nueva invasión de campesinos se produjo a terrenos del Chapare. 12 May.

1983f Campesinos declaran emergencia ante invasión de sus terrenos. 24 May.

Los Tiempos (Cochabamba)

1984a Los campesinos del Chapare piden reversión de tierras. 14 January.

1984b Ocupación de tierras en el Chapare origina inmoralidad de dirigentes. 19 July.

1984c Veinte campesinos heridos en disputa entre dos grupos. 6 July.

1984d Colonizadores defenderán sus tierras si se repiten hechos vandálicos. 11 July.

1984e Existe en el pais una excesiva producción de hojas de coca. 3 August.

1984f El Chapare producirá 120 mil toneladas de Coca. 1 December.

1984g Dirección de Control de la Coca promoverá programa sustitutivo. 27 August.

1984h El cacao y la coca en el Chapare. 30 January.

1985a Se pretende mejorar los sistemas de producción agrícola y forestal. 3 April.

1985b La cocaína tuvo mas utilidades que la exportación de minerales. 8 January.

Mayer, Enrique

1985 "Production Zones." In Andean Ecology and Civilization: An Interdisciplinary Perspective on Andean Ecological Complementarity. Pp. 45-84. Edited by Shozo Masuda, Izumi Shimada and Craig Morris. Tokyo: University of Tokyo Press.

Moore, Keith

1984 The Household Allocation of Farm-Based Families in Wisconsin. Ph.D. Dissertation, Sociology, University of Wisconsin-Madison.

Organization of American States (OAS)
1984 Bolivia: Magnitude and Origin of the Economic Crisis of 1982 and the Economic Policies of the Constitutional Government. Washington: Organization of American States. General Secretariat. Executive Secretariat for Economic and Social Affairs. Short Term Economic Reports Vol. IX.

Orlove, Benjamin
1977 "Inequality Among Peasants: the Forms and Uses of Reciprocal Exchange in Andean Peru." In Peasant Livelihoods Pp. 201-214. Edited by Rhoda Halperin and James Dow. New York: St. Martin's Press.

Painter, Michael
1984 "Changing Relations of Production and Rural Underdevelopment." Journal of Anthropological Research 40 (2): 271-292.

Painter, Michael
1985 "Reconstructing Reciprocity in an Andean Peasant Society." Paper presented at the Annual Meeting of the American Anthropological Association.

Pereira, Francisco and José Salinas
1982 "General Evaluation of the Agricultural Potential of the Bolivian Amazon." In Agriculture and Land Use Research. Pp. 18-31. Edited by Sussana Hecht. Cali: CIAT.

Plowman, Timothy
1984a "The Origin, Evolution and Diffusion of Coca, Erythoxylum spp., in South and Central America." In Pre-Columbian Plant Migration. Pp. 126-163. Edited by Doris Stone. Cambridge, Mass: Papers of the Peabody Museum of Archaeology and Ethnology, Vol. 76.

1984b "The Ethnobotany of Coca (Erthroxylum spp., Erythroxylacae)." Advances in Economic Botany 1:62-111.

Roberts, Ralph
1975 Migration and Colonization in Colombian Amazonia: Agrarian Reform or Neo-Latifundismo? Ph.D. dissertation, Anthropology, Syracuse University.

Roseberry, William
1986 "The Ideology of Domestic Production." Labour, Capital and Society 19(1):117-126.

Sanabria, Harry
1988a "Potato Production in Bolivia: The Role of Non-Wage Labor in an Expanding Regional Cash Crop Economy." Paper presented at the 1988 Annual Meeting of the Society for Applied Anthropology, Tampa, Florida.

1988b "Coca, Migration, and Potatoes: The Case of a Bolivian Peasant Community." Paper presented at the 35th International Congress on Alcoholism and Drug Dependence, Oslo, Norway.

Schmink, Marianne
1981 A Case Study of the Closing Frontier in Brazil. Gainesville: University of Florida. Amazon Research and Training Program. Research Paper No. 1.

Smith, Carol
1984 "Does a Commodity Economy Enrich the Few While Ruining the Masses? Differentiation Among Petty Commodity Producers in Guatemala." Journal of Peasant Studies 11(3):60-95.

1985 "Local History in Global Context: Social and Economic Transitions in Western Guatemala." In Micro and Macro Levels of Analysis in Anthropology: Issues in Theory and Research. Pp. 83-120. Edited by Billie R. DeWalt and Pertti Pelto. Boulder: Westview.

Smith, Gavin and Jonathan Barker
1986 "Editorial Introduction." Labour, Capital and Society 19(1):117-126.

Stearman, Allyn MacLean
1985 Camba and Kolla: Migration and Development in Santa Cruz. Orlando: University Presses of Florida.

Stein, William
1984 "How Peasants are Exploited: The Extraction of Unpaid Labor in Rural Peru." In Research in Economic Anthropology 6:273-308.

Thiesenhusen, William
1971 "Colonization: Alternative or Supplement to Agrarian Reform in Latin America." In Land Reform in Latin America: Issues and Cases. Edited by Peter Dorner. Madison: Land Tenure Center Economics Monographs No. 3.

_____
1984 "The Illusory Goal of Equity in Latin American Agrarian Reform." In International Dimensions of Land Reform. Pp. 31-62. Edited by John D. Montgomery. Boulder: Westview Press.

1987 "Rural Development Questions in Latin America." Latin American Research Review XXII(1):171-203.

Wagner, Catherine A.
1978 "Coca y Estructura Cultural en los Andes Peruanos." América Indigena XXXVII(4):877-904.

Weil, Connie
1980 The Adaptiveness of Tropical Settlement in the Chapare of Bolivia. Ph.D. dissertation, Geography, Columbia University.

Weil, Jim
1980 The Organization of Work in a Quechua Pioneer Settlement: Adaptation of Highland Tradition in the Lowlands of Eastern Bolivia. Ph.D. dissertation, Anthropology, Columbia University.

Wessel, Kelso
1968 An Economic Assessment of Pioneer Settlements in the Bolivian Lowlands. Ph.D. dissertation, Agricultural Economics, Cornell University.

Wennergren, E. and Morris D. Whitaker
1975 The Status of Bolivian Agriculture. New York: Praeger.

World Bank
1984 Bolivia: Agricultural Pricing and Investment Policies. Washington: The International Bank for Reconstruction and Development.

Zeballos-Hurtado, Hernán
1975 From the Uplands to the Lowlands: An Economic Analysis of Bolivian Rural-Rural Migration. Ph.D. dissertation, Agricultural Economics, University of Wisconsin-Madison.

The Use of Alcohol Among Indians and Ladinos in Chiapas, Mexico(*)

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Introduction

The purpose of this article is twofold: to explore the historical functions that alcohol consumption had in peasant and Indian communities in Chiapas, Mexico; and to provide an ethnographic account of the drinking pattern in the municipio of Tenejapa, Chiapas. The ethnographic account relates the civil-religious hierarchy, and intra- and inter-ethnic relations with the consumption of aguardiente and beer. Finally, some tentative conclusions are drawn concerning alcohol consumption in Tenejapa.

The ethnographic data for this article stem from a larger research project on the process of capital accumulation, development and transportation. The field research was done from February 1985 to August 1986. Participant observation in the field and open-ended informal interviews were the basic methods of data gathering. Situational analysis was mainly used to address the status claims of the participants in ceremonial and non-ceremonial drinking rituals.

Historical Background

Tenejapa is one of the Tzeltal speaking municipios that make up the subregion of San Cristóbal de las Casas.(1) Tenejapa covers an area of 70 square miles or 181.3 square kilometers, with an estimated population of 26,081 inhabitants in 35 recognized parajes (Berlin, et al. 1974:20; Diagnóstico Municipal, 1985:8). Each paraje constitutes dispersed extended families, internally bound through agnatic descent and some through affinal ties, thus facilitating the organization of corporate groups (Medina-Hernandez, 1970-71:8). In Tenejapa, as in any other municipio in the Highlands, the set of complex social relations are developed and maintained through series of complex rituals which are executed through the drinking of pox (Bunzel, 1940:377; Navarrete-Pellicer, 1983:107).

The consumption of alcoholic beverages in pre-hispanic times, mainly pulque in Central Mexico and chicha(2) in the Maya area, was primarily ceremonial/ritualistic, although constituting a form of tax. The consumption of these substances was limited to ceremonial/ritual occasions: special holidays in honor of their gods and social affairs either public or domestic. The ceremony/ritual followed a rigid procedure, executed by specialized persons who were permitted to drink. Besides the ritual specialist, men and women fifty years old or older and in some occasions married men, warriors, merchants and community authorities were allowed to drink (Navarrete-Pellicer, 1983).

With the Spanish conquest and the subsequent production of aguardiente, the ceremonial/ritualistic function gave way to its economic aspect, delegating its primary sacred role to a second level. This transformation was due mainly to the de-ritualized patterns of drinking inebriating beverages brought on by the Spaniards (Navarrete-Pellicer, 1983:50-71).

Aguardiente was extensively used as one of the items in what Larson and Wasserstrom (1982) have called the "forced consumption" period (approximately from 1545 to 1824) in Chiapas colonial history. Spain, in order to administer its territory and to implement the forced consumption, developed a complex administrative bureaucracy which benefited from corruption, extortion and defalcating

royal taxes. These local administrators, led by alcaldes mayores (province governors), organized illegal economic activities by forcing the inhabitants of the Indian towns to accept concessions of aguardiente, textiles, seeds, and other petty commodities in exchange for cash-crops such as cacao, cochineal and indigo. This developed into an artificial market which had the ultimate goal of mobilizing the Indian workers into the production of commodities for the international market (Larson and Wasserstrom, 1982:364-365, 383).

Moreover, aguardiente consumption in Chiapas Indian and peasant communities in colonial times has been classified as a problem. In 1848, a priest who provided religious services to the municipio of Tenejapa complained about the excessive alcohol consumption among the Indian population, especially during the holidays (Archivo Histórico Diocesano de San Cristóbal de las Casas, 1848). However, the same historical source indicates that an economic interest was being defended: the collection of imposed taxes.(3)

The production of aguardiente was controlled by the Spaniards while its distribution was regulated by the mestizos, constituting a well-integrated system with the hacienda system. The aguardiente was the preferred mechanism by which the haciendas obtained their essential Indian labor supply through the enganche system. Additionally, the aguardiente was used extensively as an in-kind payment for Indian labor.

In the Central Highlands of Chiapas there is historical indication that up until the 19th Century, Indians who associated ladino oppression with aguardiente requested government officials remove of ladinos from the Indian communities and prohibit the sale of alcohol; Indians refused payments in alcohol in a passive way, without manifesting overt resistance (Navarrete-Pellicer, 1983:59-63, 73).(4)

Contemporary

Part of the process of capital accumulation in the Highlands of Chiapas since the 1940's stemmed from the production of cash crops (e.g. corn in Zinacantan and coffee in Tenejapa), aguardiente and their respective transporta-

tion. Thus, transportation of aguardiente and crops was an important and constant variable in the process of capital accumulation. One of the most interesting cases in which aguardiente transformed the Indian communities is found in the municipio of Chamula.

In 1942, the Chamula scribes made an alliance with state authorities to enforce the law of 1937. This law allowed the religious cargo(5) holders or the ones who would assume such an office to sell aguardiente as a way of paying the cost of their cargo service (Wasserstrom, 1983:177).(6) This alliance coincided with the destruction of the aguardiente-production monopoly controlled by the Pedrero's brothers (Crump, 1987:244-246; Navarrete-Pellicer, 1983:67-72).(7) Chamula's scribes took advantage of the historical conjuncture and began to develop the transport activity jointly with the production and distribution of aguardiente. In order to get the necessary panela to produce aguardiente, the Chamulas had first to transport it from the lowland to the Highland municipio. This stimulated the first Indian producers of aguardiente to acquire transport vehicles (Crump, 1985:359).

The Instituto Nacional Indigenista (INI), during the 1950's, began to implement some of the development projects in Chamula. Some of these development projects were the construction of roads, the formation of truck cooperatives, and a shift and increase in cash-crop production to satisfy the San Cristóbal de las Casas ladino population (Kohler, 1975).(8) Chamula authorities began to function as intermediaries between INI and the Chamula community, thus consolidating the power of Chamula authorities which developed parallel with the production of aguardiente.

In the 1950's the Highland Indian communities experienced another transformation, this time responding to the penetration of the Protestant Church.(9) In the municipio of Chamula, the protestant insertion developed in the late 1960's and early 1970's causing the emergence of conflicts. Such conflicts resulted in the subsequent expulsion of the converted protestant Chamulas from the municipio's boundaries (La Galeria, 1984:28-29). However, Chamula was not the only municipio that experienced internal tensions. In the municipio of Chanal, protestant penetration in the 1950's caused conflicts which resulted in

the killing of some Protestant followers, while others had their houses set on fire and were expelled from the community (Navarrete-Pellicer, 1983:119). Today, consumption of inebriating beverages is a major prohibition for the Protestant believers. Nevertheless, in the Chiapas Highland Indian communities the consumption of aguardiente has been described as "... a necessary part of every social contact" (Bunzel, 1940:377). Subsequently, protestant believers were isolated from the rest of the community and stigmatized as selfish and anti-social.

Two of the main issues which caused internal fragmentation of these two Indian municipios were the protestant's prohibition regarding consumption of inebriating beverages and their doctrine which seeks private capital accumulation. In this regard, the sponsorship of religious and civil ceremonies required buying ceremonial items such as aguardiente, cigarettes, candles, incense and fireworks. The Protestant believers argue that such spending does not allow for private capital accumulation. There are two different perspectives regarding the social structure (civil-religious hierarchies) of the Indian communities.(10) The first perspective sees the civil-religious hierarchy as a mechanism of stratification (Cancian, 1965; Smith, 1977; Wasserstrom, 1978 and 1983; Wasserstrom and Rus, 1981). Accordingly, there is no contradiction between the stratified civil-religious system and the Protestant doctrine of private capital accumulation. The second perspective sees the social structure as a leveling mechanism (Camara-Barbachano, 1968; Carrasco, 1961; Falla, 1969; Zabala-Cubillas, 1961). That is, the sponsorship of a cargo requires tremendous cash expenditures, thus depleting the sponsor's accumulated capital and non-accumulated capital (credit). On the other hand, the cargo system does not constitute a leveling mechanism since the wealthy will continue to be wealthy even though ideologically a sense of ephemeral equality is expressed/shared through the drinking of aguardiente. As Wolf (1955:458) states,

> The existence of such leveling mechanisms does not mean that class divisions within the corporate community do not exist. But it does mean that the class structure must find expression within the boundaries set by the community.

Pox in Tenejapa

The literal translation of pox (pronounced posh) is medicine. Pox contains between 39 to 44 percent ethanol alcohol by volume. Although aguardiente is the commonly understood message, the Indian curandero uses pox during traditional curing rituals. The belief that pox is medicinal is not exclusive of the Indian population world view. Other groups also include it in their beliefs. For example, a mestizo petty cloth seller had such a profound chest pain he went to see a mestizo doctor in San Cristóbal de las Casas. The modern medicine that the doctor prescribed to him did not alleviate the patient's chest pain. After a period of treatment, the doctor asked the mestizo whether he liked drinking pox before the pain started. As the mestizo admitted his occasional social drinking of pox, the doctor's final prescription was "You should have a couple of shots of pox once in a while."

Pox drinking patterns are manifested within two different types of social contexts. The first context is ceremonial, including activities such as life cycle rituals (birth, baptisms, marriages and death), conflict resolutions, and political and religious ceremonies. Within this context, drinking is intended to celebrate a major rite of passage/initiation, a political event, or to honor a religious saint. The political and religious ceremonies follow strict ritual procedures. The second context has a daily non-ceremonial meaning or occasional sociability interaction/encounters (cf. Siverts, 1973:167). In this case, drinking is intended to maintain and develop kin and non-kin social relations.

Furthermore, the ritual of drinking pox "... acknowledges the social order based on sex, age and social status established by the civil-religious hierarchy through the form and quantity of pox that circulates" (Navarrete-Pellicer, 1983:109). In civil ceremonies the rounds of pox normally circulate from left to right since the most prestigious person(s) sits on the left. On the other hand, in religious ceremonies and non-ceremonial occasions, the order is not normally established by the sitting arrangement. The pox pourer is required to know every participant's status in order not to violate the hierarchy established by the cargo system.

Every participant receives his/her share of pox, referring to it by the Spanish term parejo (even, equal, leveled). The concept of parejo is important in ceremonial as well as non-ceremonial occasions since the amount of available pox should be distributed evenly among the participants, denoting a sense of equalness.(11) In civil or religious ceremonies one or two persons are appointed by the sponsor to pour the pox. These pourers represent the individual who donates the pox or the civil or religious groups who sponsor the ceremony headed by one of their authorities. The recipient person does not necessarily have to drink his/her share, being allowed to save it in a cacho (a hollow bull's horn used to save the unconsumed pox). In non-ceremonial occasions there is no pourer designated. Such role is assumed voluntarily, normally by the host.

In Tenejapa, the guest accepts a drink with a special gesture addressed to the sponsor. The guest's gesture reflects a willingness to become a participant in the ceremony or social interaction. In both situations, the manifestation of each individual's status is implicit in the relative order of drinking. On the other hand, not accepting a drink is a sign of refusal to interact. Elsewhere, among the Mapuche Indians from Chile, persons who do not want to drink are not willing to lower their defenses, thus assuming a power position over the ones that are drinking (Lomnitz, 1973). No information was gathered suggesting or reflecting the lowering of defenses in Tenejapa. The underlying assumption is that one does not drink with persons who are potentially a source of conflict but rather with friends and potential friends in which case you can lower the defenses.

When an invitation to drink is extended and the receiver is undecided, the pourer will attempt to convince him/her to accept. This situation repeats itself four or five times developing into what I call the "convincing ritual." In this ritual, the participants (sponsor and receivers) test each other's social status and their possible need to share information. In the event that the accepted cup of pox is returned unfinished, the pourer will insist it be finished. If the recipient replies by saying that he drank it all, the rest of the participants will call his attention by saying "all of us have drunk parejo" (the same amount) and "it was not too much to drink."

On one occasion, two alcaldes(12) and I were sharing some pox. At that time, the first alcalde did not want to drink nor was he carrying his cacho. With few alternatives left he discarded approximately one third of the glass under his chair. By the second round of pox, the second alcalde felt personally insulted and vigorously recriminated such behavior. The recriminating alcalde explained to me that it was not the Tenejapaneco tradition to discard pox in such fashion. The first alcalde, although attempted to justify his action, was left with the only alternative of finishing what was offered, parejo.

The ritual of toasting, which is totally formalized in ceremonial occasions, is executed by raising the glass and saying ochanta loudly, which means wishing good health. At the same time, the receiver acknowledges the participants by making eye contact with persons of highest status or the pox attendant who represents the sponsor.

The ritual of toasting has been understood as a social contract in which the parties involved in the interaction agree to share the available drink (Doughty, 1967:670). However, in Tenejapa the agreement to share the available drink occurs in the convincing ritual and not in the toasting. Thus, the process of toasting acknowledges the participants' status. In addition, "The refusal to drink once a relative drinking order has been established means refusal to accept certification of one's own rank assignment" (Kay and Metzger, 1973:31).

There are some strategies used to meet people which are potential sources of information. On days of religious and civil ceremonies or market days, Indians walk the streets in such a manner that they expose themselves to be invited to drink pox. Another strategy utilized to maximize the opportunity for social contact is to visit the different cantinas in search of congenial drinking partners. Additionally, strangers who enter a cantina are frequently invited to share with the group the ritual of drinking.

Although the consumption of pox is the ritual by which social relations are produced, recreated and/or solidified (either in ceremonial or non-ceremonial situations), there are some strategies used to avoid drinking. The most common is to avoid passing by a cantina where drinking is

be taking place. Another tactic is to just say that one is ill and emphasize this by taking medication. The third alternative is to refuse the invitation by promising to drink at a future date. Sometimes this is not enough and Indians require the accion, consisting of drinking only one shot of pox. The accion signifies the willingness to accept the gift (pox) and therefore keeps the doors open for future social interaction.

There are groups of Indians and ladinos who do not drink inebriating beverages. In non-ceremonial occasions when invited to drink some of them respond that they have never drunk while others argue that they stopped a long time ago. Although the convincing ritual occurs in this situation, it lasts for a shorter time and it is understood that there is no offence since the denial is stated to every potential sponsor. However, the non-drinkers do not participate in ceremonial activities where pox consumption is required.

The amount of pox consumed by Indians in ceremonial and non-ceremonial gatherings and by mestizos in non-ceremonial situations is considerable. An Indian household composed of five to six members will drink approximately one to four liters of aguardiente a week, depending on the age and sex of the household members and the ceremonial cycle (Navarrete-Pellicer 1983:90). This implies that the Indian agricultural worker will need to spend from half a day to one and a half days working to cover pox expenses.

It is a cultural understanding that a celebration is considered a good one when there is plenty to drink, especially in religious fiestas. Some of these fiestas last for as many as three consecutive days. Furthermore, the conception of pox consumption as a gift implies that it is to be drunk. To keep an unfinished bottle of pox dedicated for a specific ceremony or to be shared with friends is considered to be impolite.

Inebriated Indians or mestizos are generally assisted by friends. When the inebriated person is unable to walk, an acquaintance will help the intoxicated person to get to their house or rented room. Also, the latter might be assisted by the father or wife. In Tenejapa, as in Chamula (Bunzel, 1940), there is no censorship against the inebriated

persons as long as physical or material damages are not caused. Moreover, there is a sense of consideration and help for the intoxicated member of the community. That is, it is expected that sober persons be called upon to understand and help inebriated persons. Sometimes those who drink too much might engage in a fight and end up in jail for a night or two. The morning after, the moral punishment consists of having them clean the town hall and surrounding areas. In some situations, additional fines are imposed upon offenders. In Tenejapa's cabecera municipal I recorded two fights among ladinos, two fights among Indian, and two inter-ethnic conflicts due to different reasons. One of the reasons was that all persons involved in the fights were inebriated. Other possible reasons that account for these conflicts/fights are purely economical. Ladinos are competitors attempting to control trading (Siverts, 1971:392). On the other hand, Indian intra-ethnic conflicts resulting in drastic increases in homicide rates have been explained by the change from subsistence agriculture to cash-crop production (coffee) in the Chatino community in Oaxaca, Mexico (Greenberg, 1987). Finally, inter-ethnic fights can be explained by the Indian feeling of resentment as a reaction to exploitation of native populations by Spaniards and ladinos (Aguirre-Beltran, 1979).

Although alcohol consumption is a contributing factor in these fights, it does not mean that it constitutes the main intervening variable. The stress of the economic variable would probably have a greater input in these conflicts. It seems that the problem resides in the fact that some researchers do not measure other intervening variables independent of the drinking behavior (Honigmann, 1979:31). According to the percentage of Indians and ladinos living in the cabecera municipal (72.35% and 27.65% respectively), one would expect a higher percentage of conflicts among the Indian than among the ladino population.(13) Notwithstanding, my observation and ethnographic data suggest that the percentage of violent conflicts among ladinos is higher than among Indians.

Furthermore, the role played by the drunk has been analyzed from two complementing perspectives which are applicable to both inter and intra-ethnic conflicts. The first one sees the role played by the drunk as balancing the social system (Dennis 1979). This balance is achieved by

airing out the critical issues known by everyone which would not be allowed to be verbalized under sober conditions. The second perspective incorporates class analysis: the upper and middle class differentiate themselves from the masses by condemning public inebriation as characteristic of a peon (Madsen and Madsen 1979).(14) Both perspectives stem from the idea that the behavior manifested while inebriated has been socially defined/prescribed by the community/society. That is, "... 'social drunkness' really defines the drunk's role, and not physiological inebriation," (Dennis, 1979:63; Marshall, 1979:453).

Ladinos feel superior to Indians since Indians drink and get inebriated anywhere religious or civil ceremonies may take place. For example, all Indian ceremonies take place in the church, the central plaza, in the open, or Indian sacred places and/or in the house of religious or civil cargo holders. Nonetheless, the church is the most frequent locality to perform their ceremonies. This implies that the consumption of pox inside the church is the norm rather than the exception. On the other hand, ladino religious ceremonies take place exclusively in the church and strictly follow the ritual procedures mandated by the Catholic protocols. Therefore, no alcoholic beverages are allowed. This practice provides ladinos with a sense of being real Catholics while considering the Indian religious customs/ceremonies as illegitimate or impure.

The ladino sense of superiority is emphasized by the fact that (1) when there are ladino religious ceremonies, Indians do not enter the church (cf. Truman, 1981) and vice versa; (2) ladino women clean the church right after the Indians finish their ceremonies as part of the preparations for their daily religious services; and (3) the Quinto Viernes ladino festivity (celebrated the fifth Friday of lent) involves an enormous amount of cash expenditure which surpasses the Indian religious fiesta expenditures.

Beer that came to the Indian communities with the relatively recent development of the road network is the second most important alcoholic beverage used in civil-religious ceremonies and non-ceremonial situations. In a civil ceremony, where the new regidores received advice from the old regidores, the former provided a liter of beer to each one of the old regidores they were substituting.

Tenejapa Indians identify beer with ladino ethnicity by referring to it with the Tzeltal term of kashlan pox meaning white's man pox (drink). Conversely, ladinos identify pox with Indians, especially its production by the neighboring Chamula Indians. Consumption of beer or pox depend on the economic condition of the Indian as well as the ladino population. Due to their higher socio-economic position, the ladinos tend to consume more beer than pox.

Conclusion

The different contours that stem from the production, distribution and consumption of alcoholic beverages are complex. At the same time, alcoholic beverages have tremendous influence on adaptation and socio-cultural processes. The aguardiente brought to the New World by Spaniards was utilized to obtain and pay the Indian labor. Indian communities responding to the de-ritualized Spanish drinking pattern and the enganche system suffered changes in their pre-hispanic pattern of alcohol consumption, from ceremonial to non-ceremonial/economic.

The production, distribution and consumption of aguardiente played an important role in the process of capital accumulation, together with cash-crop production, its transportation, the state interest to integrate the Indian communities to the nation-state and the penetration of the Protestant Church. In civil and religious ceremonies it is essential to maintain the social structure of the Indian communities, which is achieved by recognizing the participants' status through the ritual of drinking. The participants' status in the civil-religious hierarchy is not only manifested in ceremonial situations but also in non-ceremonial, social situations.

Intrinsic in the pox drinking ritual is the concept of parejo, which addresses the egalitarian aspect of social relations. That is not to say that Tenejapa is an egalitarian society but rather that within the existing stratification system there is an ideological instance of social homogeneity, solidarity and equality which is essential for the maintenance of the social structure.

The time spent in ceremonial and non-ceremonial drinking is not considered wasted, but rather as unproductive time. Collective or group inebriation in ceremonial situations does not result in alcohol dependance, anomie nor social dysfunctionality (Mandelbaum, 1979:23). The sociocultural construct of alcohol consumption allows the social structure to control its consumption and therefore it cannot be classified as a social problem. This is not to say that there are no cases of alcohol dependency, but to argue that, considering the use of pox, such cases are minimal.

Different perspectives have been adopted to analyze alcohol consumption. The epidemiological perspective perceives it as a problem. However, the anthropological perspective based on a cultural relativism and the native point of view challenges the epidemiological perspective and its definitions of "alcoholism," "alcohol abuse" and "problem drinking" (Douglas, 1987; Marshall, 1979:1-11, 452-454). Such definitions are ethnocentric and imply some social dysfunctionality stemming from western capitalist values regarding production, health, and the scientists' point of view.

Although there have been attempts to analyze Indian alcohol consumption patterns in Mexico from a cultural relative perspective (Berruecos-Villalobos, 1985) and the consumption patterns among the Mexican population in general (Berruecos-Villalobos, 1984) such attempts are based on quantitative data and the notion that alcohol consumption is a social problem. These attempts do not make full reference to the use of alcohol in its cultural context.

Finally, the symbolic meaning of alcohol consumption patterns has not been fully addressed in the existent literature. In Tenejapa, concepts such as parejo, accion and the ritual of pox drinking are essential for the understanding of the social structure as well as the overall social dynamics. At a symbolic level, pox is identified with land. This argument could be illustrated with a Tenejapa Indian's view of pox. Miguel, just arrived from the Soconusco coffee plantations, while drinking a quart of pox in Tenejapa's Sunday market stated that "What the land gives me I drink, that is why God made it."

GLOSSARY

acción	action, gesture.
aguardiente	rum, made from sugar cane.
alcalde(s)	political authorities.
alcaldes mayores	province governors in colonial times.
cabecera municipal	administrative municipal center.
cacho	a hollow bull's horn.
cantina(s)	a one room saloon.
cargo(s)	positions in the civil-religious hierarchies.
chicha	fermented drink made from sugar cane.
curandero	shaman.
enganche	the system by which the Spaniards obtained the necessary labor force for their haciendas.
fiesta(s)	a complex set of political but mainly religious celebrations.
haciendas	an agricultural productive system widely used to colonize the new world, consisting of one or various plots of lands and the utilization of landless peasants, a coerced labor force and/or share croppers.

GLOSSARY (Cont'd)

kashlan pox	white's man drink, beer.
ladino(s)	a cultural term referring to non-Indian Mexicans or Indians who have adopted western cultural patterns.
mestizo(s)	a cultural term referring to non-Indian Mexicans or Indians who have adopted western cultural patterns.
municipio(s)	the smallest administrative unit in Mexico.
panela	brown sugar.
paraje(s)	Indian communities.
parejo	even, equal, leveled.
plaza	public square; not to be confused with market place.
pox	rum, medicine.
pulque	fermented drink made from the agave plant.
Quinto Viernes	a ladino religious celebration.
regidor(es)	civil cargos lasting one year. Their function is three fold: as messengers of the president, as town police and as the president's guards.

NOTES

*I would like to acknowledge the National Science Foundation and the Fulbright Hays for their economic sponsorship for the field research stage. Also I would like to thank Dr. Jaime L. Loyola, Jr. for his support.

1. San Cristóbal de las Casas and surrounding municipios is the best well known subregion that constitutes part of the Central Highlands of Chiapas region. The San Cristóbal de las Casas subregion, in 1980, had a total population of 232,625 inhabitants of which 40% are economically active. The Indian population constitutes 62.3% with a 41.2% illiteracy rate. The percentage of the Indian population who do not speak Spanish is 55.1%; 66.9% live in houses without piped water and 74.8% without electricity service (Centro de Investigaciones Ecológicas del Sureste, 1985:13).

2. In the Americas, chicha is the name of a variety of fermented drinks made out of corn, sugar cane, and wild fruits. In the state of Chiapas chicha is made out of fermented sugar cane juice.

3. Rus (1983) suggests that these complaints manifest the loss of power for the Highland clergy and their merchant allies (conservadores).

4. For a description of how the enganche system was implemented through the consumption of alcohol see Bunzel (1940:363); Wasserstrom (1980:46-62); Navarrete-Pellicer (1983:64-67). In Chile, besides the enganche system the mestizos used aguardiente to buy land from the Indians (Lomnitz 1973:141).

5. Cargos are rotating positions/obligations in the civil-religious hierarchy.

6. Wasserstrom (1983) sees the scribes and local authorities perpetuating their power position as caciques in the community by creating and controlling truck cooperatives/associations. De la Fuente (1977:236) sees it as a mechanism by which the Indian status is re-evaluated in relation to the ladino population. It is my

understanding that the positions are not mutually exclusive but rather complement each other.

7. Crump (1987:246) and Navarrette-Pellicer (1983:69-70) address a series of characteristics that account for the formation of monopolies.

8. San Cristóbal de las casas from colonial times has constituted a commerical and administrative center. Presently it still plays an important economic role stemming from: (1) maintaining the bureaucratic government institutions; (2) private exploitation of the Lacandona jungle resources; and (3) commercialization of imported and locally produced commodities which are mainly sold to the Indian population.

9. The Instituto Linguístico de Verano entered into the Tzeltal region in 1938. By 1951 the Mexican Government formalized the relationship with the Instituto Linguístico de Verano, through the Secretaría de Educación Pública, in order to carry out linguistic research. With the development of linguistic research, school textbooks and bibles were transliated into the Tzotzil and Tzeltal languges facilitating the penetration by the Protestant Church.

10. In the anthropological literature on Mesoamerica, the social structure of Indian peasant communities has been called the fiesta system, the cargo system, the civil-religious hierarchy and/or the political-religious hierarchy. The fiesta system normally address the religious side of the hierarchies.

11. Women are allowed to drink equally as men in ceremonies where they participate, although the number of ceremonies in which women participate is less than those in which men take part.

12. For a description on the functions of alcaldes in Tenejapa see Camara-Barbachano (1966:137, 140) and Truman (1981:130-131).

13. The population census done by this author in 1986 indicates that the total cabecera municipal population is 1,085. The data gathered shows that the number of

mestizos is approximately 300 or 27.65% of the cabecera municipal population while only constituting 1.70% of the total municipal population.

14. Stavenhagen (1969) and Pozas and Pozas (1971) suggest that notions of ethnicity disguise real class differences. However, it could be argued that the concept of class, as well as the concept of ethnicity, are folk classifications.

BIBLIOGRAPHY

Aguirre-Beltrán, G.
1979 Regions of Refuge. Washington, DC: The Society for Applied Anthropology. Monograph Series # 12.

Berlin, Brent, Dennis E. Breedlove and Peter H. Raven
1974 Principles of Tzeltal Plant Classification: An Introduction to the Botanical Ethnography of a Mayan-Speaking People of Highlands Chiapas. New York: Academic Press.

Berruecos-Villalobos, Luis
1984 El alcoholismo y el abuso del alcohol, como problema de salud publica, desde un punto de vista de un antropológo social. In Investigaciones recientes en el area maya. XVII Mesa Redonda, Tomo V. Pp. 477-483. San Cristóbal de las Casas: Sociedad Mexicana de Antropologia.

1985 "El consumo del alcohol en algunos grupos indígenas de Mexico." In El alcoholismo en Mexico: Negocio y manipulacion. Pp. 136-177. Mexico: Editorial Nuestro Tiempo.

Bunzel, Ruth
1940 "The Role of Alcoholism in two Central American Cultures." In Psychiatry Journal of the Biology and Pathology of Interpersonal Relations 3:361-387.

Camara-Barbachano, Fernando
1966 Persistencia y cambio cultural entre los Tzeltales de los Altos de Chiapas. Mexico: Escuela Nacionnal de Antropologia e Historia.

1968 Religious and Political Organization. In Heritage of Conquest. Sol Tax, ed.. Pp.142-174. Glencoe: Free Press.

Cancian, Frank.
1965 Economics and Prestige in a Maya Community. California: Stanford University Press.

Carrasco, Pedro.
1961 The Civil-Religious and Political Hierarchy in Mesoamerica Communities. American Anthropologist 63:483-497.

Centro de Investigaciones Ecologicas del Sureste.
1985 El desarrollo de la producción agrícola en la subregion San Cristóbal de las Casas (Protocolo de Investigación). San Cristóbal de las Casas: Centro de Investigaciones Ecologicas del Sureste.

Crump, Thomas
1985 Truck Farming, Foreclosure and Class Structure in Rural Mexico. In Modernization and the Emergence of a Landless Peasantry: Essays on the Integration of Peripheries to Socioeconomic Centers. G. N. Appell, ed. Pp. 353-367. Williamsburg, VA: Studies in Third World Societies.

Crump, Thomas
1987 The alternative economy of alcohol in the Chiapas highlands. In Constructive Drinking: Perspectives on Drink from Anthropology. Mary Douglas, ed. Pp. 239-249. New York: Cambridge University Press.

de la Fuente, Julio
1977 Educación, antropologia y desarrollo de la comunidad. Mexico: Instituto Nacional Indigenista.

Dennis, Philip A.
1979 The Role of the Drunk in a Oaxacan Village. In Beliefs, Behaviors, & Alcoholic Beverages: A Cross-Cultural Survey. Mac Marshall, ed. Pp. 54-64. Michigan: University of Michigan Press.

Diagnostico Municipal
1985 Diagnóstico Municipal - Tenejapa. San Cristobal de las Casas: Ayuntamiento Municipal de Tenejapa.

Doughty, Paul L.
1967 La cultura, la bebida y el trabajo en un distrito mestizo andino. Amèrica Indígena 27(4):667-687.

Douglas, Mary (ed.)
1987 Introduction. In Constructive Drinking: Perspectives on Drink from Anthropology. Mary Douglas, ed. Pp. 3-15. New York: Cambridge University.

Falla, Ricardo.
1969 Analisis horizontal del sistema de cargos. America Indigena 29:923-947.

Greenberg, James B.
1987 El dinero del cafe y la violencia en las comunidades Chatinas de Oaxaca. Paper presented at the Annual Meeting of Applied Anthropology in Oaxaca, Mexico.

Honigmann, John J.
1979 Alcohol in Its Cultural Context. In Beliefs, Behaviors, & Alcoholic Beverages: A Cross-Cultural Survey. Mac Marshall, ed. Pp. 30-35. Michigan: University of Michigan Press.

Kay, Paul and Duane Metzger
1973 Introduction. In Drinking Patterns in Highland Chiapas. Henning Siverts, ed. Pp. 17-34. Norway: Norwegian Research Council for Science and the Humanities.

Kohler, Ulrich
1975 Cambio cultural dirigido en los Altos de Chiapas. Mexico: Instituto Nacional Indigenista.

La Galeria
1984 El Instituto Lingüístico de Verano. In Topos, pp. 28-29. San Cristóbal de las Casas: La Galeria.

Larson, Brooke and Robert Wasserstrom
1982 Consumo forzoso en Cochabamba y Chiapa durante la epoca colonial. Historia Mexicana 31(3):361-408.

Lomnitz, L.
1973 Influencia de los cambios políticos y económicos en la ingestión de alcohol: el caso Mapuche. Amèrica Indígena 33(1):133-150.

Madsen, William and Claudia Madsen
1979 The Cultural Structure of Mexican Drinking Behavior. In Beliefs, Behaviors, & Alcoholic Beverages: A Cross-Cultural Survey. Mac Marshall, ed. Pp. 38-54. Michigan: University of Michigan Press.

Mandelbaum, David
1979 Alcohol and Culture. In Beliefs, Behaviors, & Alcoholic Beverages: A Cross-Cultural Survey. Mac Marshall, ed. Pp. 14-30. Michigan: University of Michigan Press.

Marshall, Mac
1979 Introduction and Conclusions. In Beliefs, Behaviors, & Alcoholic Beverages: A Cross-Cultural Survey. Mac Marshall, ed. Pp. 1-11, 451-457. Michigan: University of Michigan Press.

Medina-Hernandez, Andres
1970-71 El proceso de cambio político en un pueblo Tzeltal. In Anales del INAH, Epoca 7ª, Tomo III, pp. 5-21. Mexico: Instituto Nacional de Antropologia e Historia.

Metzger, Duane and Gerald Williams
1963 A Formal Ethnographic Analysis of Tenejapa Ladino Weddings. Ethnology 65:1076-1101.

Navarrete-Pellicer, Sergio J.
1983 El aguardiente en una comunidad maya de los altos de Chiapas. Ph.D. dissertation, Mexico: Instituto Nacional de Antropologia e Historia.

Pozas, Ricardo and Isabel H. de Pozas
1971 Los indios en las clases sociales de Mexico. Mexico: Siglo XXI Editores.

Rus, Jan
1983 Whose Caste War? Indians, Ladinos, and the Chiapas "Caste War" of 1869. In Spaniards and Indians in Colonial Chiapas: Essays on the History of Ethnic Relations. Murdo J. Macleod and Robert Wasserstrom, eds., pp. 127-168. Nebraska: University of Nebraska Press.

Siverts, Henning
1971 On Politics and Leadership in Highlands Chiapas. In Desarrollo Cultural de los Mayas. Evon Z. Vogt and Alberto Ruz, eds. Pp. 387-408. Mexico, D.F.: UNAM.

Siverts, Henning
1973 Oxchuc Ceremonial Drinking: A Preliminary Survey of Responses to 120 Query Frames. In Drinking Patterns in Highland Chiapas. Henning Siverts, ed. Pp. 147-175. Norway: Norwegian Research Council for Science and the Humanities.

Smith, Waldemar R.
1977 The Fiesta System and Economic Change. New York: Columbia University.

Stavenhagen, Rodolfo.
1969 Las clases sociales en sociedades agrarias. Mexico: Siglo XXI Editores.

Truman, Kathleen.
1981 Wealth, Power, and Prestige in Mesoamerica: A Quantitative Approach to the Analysis of Cargo Systems. Ph.D. Dissertation, University of California, Riverside.

Wasserstrom, Robert.
1978 The Exchange of Saints in Zinacantan: The Socio-Economic Bases of Religious Change in Southern Mexico. Ethnology 17:197-210.

1980 Ingreso y trabajo rural en los Altos de Chiapas. San Cristóbal de las Casas: Centro de Investigaciones Ecólogicas del Sureste.

1983 Class and Society in Central Chiapas. California: University of California Press.

Wasserstrom, Robert and Jan Rus.
1981 Civil-Religious Hierarchies in Central Chiapas: A Critical Perspective. American Ethnologist 7:466-478.

Wilson, Carter
1973 Expression of Personal Relations through Drinking. In Drinking Patterns in Highland Chiapas. Henning Siverts, ed. Pp. 121-146. Norway: Norwegian Research Council for Science and the Humanities.

Wolf, Eric R.
1955 Types of Latin American Peasantry. American Anthropologist 57:452-471.

Zabala-Cubillas, Manuel.
1961 Instituciones políticas y religiosas de Zinacantan. In Estudios de Cultura Maya 1:147-158.

COCA PASTE AND COCAINE ABUSE IN PERU: ASSOCIATIONS, COMPLICATIONS AND OUTCOMES IN 389 PATIENTS

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Introduction

In cocaine producing countries, the abundance of substances containing the alkaloid cocaine and the relatively low prices for these substances facilitate a considerable use of some form of cocaine by some groups in Peru. As it is known, about six million people in different ecological areas in Bolivia, Colombia and Peru chew the coca leaf daily or several times per week. However, there is no scientific consensus on the traditional use of the leaf. Some consider the coca chewing practice to be a habit while others argue about its addictive effect. Recently, there has appeared in Peru another addiction of epidemic proportion: coca paste smoking.

Coca paste is an intermediate stage in the process of isolation of the main alkaloid contents of the coca leaf and it may contain from 40 to 91 percent of cocaine. This raw or half-way refined substance is usually smoked mixed with tobacco or cannabis in contrast to cocaine hydrochloride or pure cocaine (crystal, crack, base) which is ingested, applied locally, snorted, injected or smoked. Coca paste smoking is now prevalent among addicts, especially among low socio-

economic groups in Bolivia, Colombia, Peru, Ecuador, Venezuela and Brazil.(1) Cocaine use is considerably associated with well-to-do groups throughout Latin America.(2)

Availability and purity of cocaine related substances have contributed to the development of a chronic endemic use of drug abuse which began in Peru and Bolivia as coca paste smoking and has spread to other neighboring countries.(3) At the beginning, of this endemic drug abuse few symptoms of organic disturbance were observed, but knowledge and experience of the new medical and social phenomena increased with the observation of subjects who had been abusing drugs for many years. It was then possible to record several social, psychological and somatic complications. It was evident that most users were persons who had personality disturbances and had used other drugs before their addiction to coca paste or cocaine. However, in the last decade it became clear that a considerable number of subjects, who had enjoyed healthy childhood, adolescence, and adulthood, had started coca paste smoking or cocaine snorting, and many had become intensive or compulsive users. Epidemiological studies clearly indicate that coca paste and cocaine use has increased considerably in Peru from 1979 to 1987.(4) The records of patients who have been treated recently are important, and require closer observation and analysis.

Methodology

From 1972 to 1986, 389 patients participated in the study while they were in treatment at three major medical centers in Lima (Dos de Mayo, San Juan deDios del Callao and Central de Policia), one state pyschiatric hospital (Larco Herrera) and two private psychiatric hospitals (San Antonio and San Isidro). All patients underwent standard medical examinations. The instrument included demographics, biographical accounts, family history, drug use including coca, coca paste and cocaine, physical and mental evaluation, psychometric tests (Raven and Wechler Bellevue Scale) and laboratory tests. Clinical evaluations concluded with diagnoses following the criteria formulated in the Diagnostic and Statistic Manual of the American Psychiatric Association.(5) Most subjects were in-patients for at least four

weeks and were recommended to continue outpatient treatment.(6)

Of the 389 patients who comprised the sample for this study 347 were males and 42 females. Ethnically, 353 patients claimed to be mestizos of different ancestry and 36 were whites. In regard to the patients' socio-economic status, the subjects were grouped according to their monthly family incomes. They were arbitrarily grouped into five categories ranging from very wealthy (1) to extremely poor or destitute (V). Sixty five percent (253) fell in the category of poor or extremely poor and 35 percent (136) came from very wealthy families to wage earners. As there is no hard and fast definition of coca paste or cocaine use, abuse and dependence patients were classified using Resnick and Schuyton-Resnick's model in recreational (5%), circumstantial (6%), and compulsive or intensive (89%) users. Therefore the majority of patients were referred to treatment or were admitted to hospitals because of health problems related to their intensive or compulsive use of coca paste or cocaine.

Results

Questions about use of other drugs prior to coca paste and cocaine addiction, as well as the transition from experimental to intensive or compulsive use were intended to establish the natural history of cocaine addiction. Polydrug, namely, cannabis, alcohol, tobacco and amphetamines were used before coca paste and cocaine. The typical transition period from these gateway substances to coca paste or cocaine use was one to three years. Nineteen percent (73) patients had snorted cocaine, or smoked coca paste recreationally for about four years after which period they increased their drug use to more frequent or binge consumption. Eighty-one percent (316) patients had taken from two to three years to go from recreational to intensive or compulsive use. The latter confirmed the result of previous research which found the rapid pace with which intense addiction to coca paste develops.(7)

Recreational users manifested anxiety, anorexia, sleeplessness, talkativeness and restlessness.(8) Twelve percent (8) circumstantial users gave accounts of their

TABLE 1

Previous and Associated Use of Other Substances in 348 Cocaine Abusers

Modality		
Previous Use		
Cannabis	248	71.2
Alcohol	223	64.0
Tobacco	141	40.5
Stimulants	125	35.9
Solvents	32	9.1
Cactus*	29	8.3
LSD	18	5.1
Associated Use		
Alcohol	275	79.0
Benzodiazepines	183	52.5
Cannabis	52	14.9
Barbiturates	24	6.8
Heroin	5	1.4
Pentazocine	3	0.8
Meperidine	2	0.5

*The cactus used in Peru usually is San Pedro (Tricocepharus pachanoi) which contains mescaline

depressions, frustrations or disorders caused by lack of adult attention which they alleviated with coca paste or cocaine. Four percent (15) students, professionals, and athletes snorted cocaine to improve their physical or mental performances, but a high dose caused alarming and persistent changes, such as tremors, sweating, tachycardia, insomnia, muscle rigidity, anxiety, myoclonic jerking and paranoid ideation. Those compulsive users who were under in-patient care showed marked psychological disturbances. Sixty-seven percent (261) presented symptoms of dysphoria, 19 percent (73) hallucinated, 12 percent (45) had psychotic behaviors and 7 percent (26) had other types of psychopathological disturbances.

During the week of admission, craving for cocaine was observed in 72 percent (279) of patients, anorexia in 67 percent (262), insomnia in 64 percent (248), restlessness in 55 percent (215), irritability in 32 percent (124) and marked depressive symptoms in 10 percent (39). Physical symptoms and signs of disturbance, such as tachycardia (76%) malnutrition (74%), rigidity-spasms (32%), respiratory disturbances (22%), high blood pressure (16%), cardiac arrhythmias (12%) and generalized convulsions (5%) were documented in most subjects during the first week of stay in treatment. After the first week of in-patient care most patients were prescribed sedatives and tranquilizers. Applying the diagnostic criteria of the DSM3 it was possible to establish disorders prior to cocaine use, and syndromes of intensive establishing disorders that resulted from previous cocaine use, syndromes of intensive ingestion and chronic disturbances associated with compulsive consumption.

Prior to using cocaine 14 percent (55) patients had shown signs of cerebral disorders characterized by mental retardation (7%), cryptogenetic epilepsy (4%), and congenital or obstetric encephalopathies (2%). On the other hand, 57 percent (223) presented defined signs of psychological disorders before using coca paste or cocaine, such as personality disorders (143), cyclothymic disorder (25), anxiety states (18), schizophrenic disorder (15), major depression (11), paranoid disorder (6) and bipolar disorder (5). Thus before starting drug consumption 278 (71.5%) individuals showed neuropsychological disturbances and 111 (28.5%) were considered normal. This latter group did not

show psychological or neurological dysfunction during infancy, childhood, adolescence or adulthood. After two weeks in treatment, dysphorias and hallucinations abated in most patients. However, depression was observed in 46 patients and paranoid symptoms persisted in 23 patients.

During observation it was difficult to differentiate toxic depression from affective depression, and paranoid ideation from schizophrenic paranoid disorders. However, previous episodes of mental disorder and persistence of symptoms four weeks following admission allowed the formulation of better and more accurate diagnoses.

During the period of recuperation 74 percent (287) of patients were still malnourished, 32 percent (124) had non-tuberculosis infections, 27 percent (105) presented cardio-vascular disorders (mainly tachyarrhytmias and high blood pressure), 22 percent (85) showed respiratory problems (bronchitis, pneumonia and ventilatory deficiencies), 9 percent (37) had evidences of meningeal, pulmonary or urinary tuberculosis, 6 percent (23) suffered from nasal lesions (rhynitis, epistaxis, ulcers and septum perforations), 5 percent (18) continued to develop generalized tonic-clonic convulsions and more than one percent (6) had ocular lesions (chemical conjunctivitis, corneal inflammation and corneal ulcers). An intelligence test administered at this stage revealed that 7 percent (28) of patients had below the average IQs.(10)

The follow-up process of these patients was extremely difficult. Some had vanished, others moved without providing a new address, and others gave false addresses during the first contact. Most of them did not have a telephone. However, using personal visits and mail or telephone communication it was possible to gather information on 72 percent (281) of the patients who participated (389) in the base interview. Four years after initial contact 36 percent (101) subjects were working or attending school, and claimed to be abstaining from cocaine; but 15 percent (41) continued drinking alcohol moderately and 8 percent (23) said were smoking marihuana occasionally. Only 6 percent (17) volunteered for a toxicological urine test. The results of the urine tests were negative in 5 percent (14) of

TABLE 2

Cocaine Use Patterns and Psychopathology in 389 Patients Admitted to Hospitals

	Patients	Percents
Stage		
Experimental	0	0.0
Recreational	18	4.6
Circumstantial	23	5.9
Intensified	185	47.5
Compulsive	163	41.9
Toxic Syndromes		
Dysphoria	261	67.0
Hallucinosis	73	18.7
Psycosis	45	11.5
Atypical	26	6.6
Associated Disorders		
Personality	143	36.4
Oligophrenia	28	7.1
Cyclothimia	25	6.4
Anxiety	22	5.6
Epilepsy	18	4.6
Schizophrenia	15	3.8
Major Depression	11	2.8
Encephalopathies	9	2.3
Paranoid	6	1.5
Bipolar	5	1.2

TABLE 3

Somatic and Psychological Complications in 348 Cocaine Abusers

	Patients	Percents
Somatic Complications		
Malnutrition	287	82.4
Non TBC Infections	124	35.6
Cardiovascular	105	30.1
Respiratory Disorders	85	24.4
Tuberculosis	37	10.6
Nasal Lesions	23	6.6
Cocaine Seizures	11	3.1
Ocular Lesions	6	1.7
Psychological Complications		
Cocaine Dependence	135	38.7
Amotivational Syndrome	63	18.1
Psychopathization	29	8.3

the follow-ups. Compared to results reported three years ago, these figures are somewhat better.(11)

The death rate of patients in this group was high. Twenty-two percent (62) died. Six percent (18) died from infectious diseases or overdoses (status epilepticus, heart arrest and respiratory arrest), and 16 percent (44) from several unknown causes. Four percent (11) were killed in accidents--most of them in car accidents. Three percent (9) died in homicides caused by fights, murdered by drug dealers or by their own relatives (parents, siblings) who had been victimized to satisfy their addiction. Two percent (6) committed suicide by jumping off buildings, shooting or poisoning or intoxicating themselves.

Comment

This clinical investigation has demonstrated that almost two-thirds of the addicts showed psychological disorders before they started using coca paste or cocaine. Although it was difficult to differentiate previous mental disorders from the symptomatology of acute or chronic cocaine intoxication, extended observation, complete personal history and physical examination allowed us to establish proper diagnoses in most cases. I have identified three types of mental disorders associated with cocaine abuse; that is, previous disturbances, syndromes of intensive use, and disorders associated with compulsive intoxication.

The clinical syndromes associated with cocaine abuse have been described as euphoria, dysphoria, hallucination and psychosis.(12). In Peru additional atypical syndromes have been documented in coca paste and cocaine addicts.(13) Cocaine euphoria is characterized by intensive pleasure, hypervigilance, hyperactivity, anorexia, insomnia and sometimes by hypersexuality. These effects are short lasting (minutes to hours). If cocaine is smoked, after a few cigarettes the subject experiences considerable anxiety, smoking compulsion, sadness, melancholy, apathy, aggressiveness, anorexia, insomnia and sexual indifference. The dysphoric reaction is observed while smoking coca paste, free base or crack. Therefore users tend to smoke continuously for many hours or days seeking to experience the euphoric reaction or to minimize the dysphoric

syndrome. After prolonged cocaine consumption most persons develop hallucinosis characterized by visual, tactile, auditory and even olfactory hallucinations, delusional interpretations, psychomotor excitement, fugue tendencies, aggressiveness and complete sexual indifference.

If for any reason the subject continues to use cocaine in sufficient amounts a psychotic toxic reaction whose main symptoms are hypervigilance, delusions of perception, brain damage, or death may develop. Some atypical syndromes show confusion, lightheadnessness, disorientation, dizziness, dysarthria, aphasia, black-outs, memory disturbances, headaches and loss of coordination of movements. Also suicide and homicide attempts may take place during this phase. These syndromes are probably associated with dopaminergic and adrenergic disturbances and are associated with tachycardia, sweating, shaking, blushing, high blood pressure, hyperperistalsis, mydriasis, rigidity, spasms, myoclonic jerking, cardiac dysrrhytmias, and sometimes generalized tonic-clonic or complex partial seizures.

Compulsive coca paste or cocaine abusers show three distinct types of chronic disturbances: dependence, amotivational syndrome and psychopathy. Dependence has three typical symptoms: tolerance, craving and withdrawal. Tolerance develops when the substance is relatively easily available and the dysphoria is marked. For example, some of my patients could smoke 40 coca paste joints in one session while others could snort several grams of cocaine in one day.(**14**) This development is in sharp contrast to kindling observed in rats.(**15**) Craving was seen since the first description of cocaine addiction and many other investigators have confirmed this observation.

If cocaine administration is interrupted suddenly the subject experiences tiredness, depression, sleep and appetite disturbances, irritability and anidrosis associated with intense craving for the alkaloid. This syndrome is considered a withdrawal reaction and it ceases when cocaine is administered and sometimes with tryciclic antidepressants or lithium.(**16**)

The amotivational syndrome is seen in persons who use cocaine intensively and for long periods of time but before reaching the compulsive stage. These individuals lose basic

interests in personal grooming, family and social relationships, efficiency at work, adequate performance at school, enjoyment of life in recreational areas, physical exercise or love associations. The amotivated subject disregards food, becomes isolated and his only interest is obtaining cash to buy cocaine.

Psychopathy caused by cocaine is characterized by profound intellectual, social and ethical deteriorations. The individual severs family ties and isolates himself from healthy friends or is alienated by other members of society. At this point, the addict frequently establishes associations with drug dealers, other addicts, criminals and tramps. As he needs cash to buy cocaine he borrows, swindles, steals or assaults pedestrians. He ends up committing crimes and increasing his police and criminal records. Female addicts also resort in criminal activities of various types such as prostitution. Many addicts are exploited by organized crime and gangs. They are subject to the underworld's and corrupt police members' arbitrary disciplinary actions which may vary from coercing them to serve as transporters of cocaine to subjecting them vicious executions.

In this group of cocaine abusers admitted to general and psychiatric hospitals, most were in the stage of intensified use: 261 were received in a dysphoric stage, 73 hallucinating and 45 psychotic conditions. Most were men of middle or lower social class, of whom 278 had manifested neuropsychological disturbances before using drugs such as personality disorders, cyclothimias, anxiety, schizophrenia, childhood encephalopathies, mental retardation, and epilepsy. This means that 71.4 percent of them had presented definite psychoneurological disturbances before abusing drugs.

Cocaine consumption in the great majority of subjects occurred after single or polydrug use of other substances (cannabis, alcohol, tobacco, amphetamines and others). Once established, cocaine abuse was always associated with alcohol. Coca paste smokers drank ethanol to diminish the dysphoric effects. Other subjects inhaled cocaine to dispel the drunkenness produced by alcohol. Naturally these procedures only increased cocaine-alcohol intoxication and gave rise to a profound neurological depression once cocaine was metabolized.

Many individuals used benzodiazepines (valium) to procure sleep after a cocaine binge. Organic complications were frequent with prolonged coca paste or cocaine ingestion. Malnutrition and immunodeficiencies exacerbate the fragility of these individuals against infectious agents. In Peru many cocaine addicts contract tuberculosis, pyogenic infections, typhoid, salmonellosis, cryptococcosis, toxoplasmosis and scabies.

Ocular and nasal lesions have been found in 29 patients, cardiovascular and respiratory disturbances were documented in 190 patients characterized especially by rapid pulse, high blood pressure, chronic bronchitis and bronchopneumonia. Neurological syndromes such as meningitis, meningo-encephalitis, cerebral abcess, obstructive hydrocephalus and prolonged vegetative state were seen in this series.(17) Cocaine epilepsy was more frequent. Several other central nervous disturbances existed in these patients before cocaine abuse.

To emphasize the nature of the coca paste and cocaine problem, I briefly summarize my findings. Most cocaine abusers had defined neuropsychological disturbances before using coca paste and cocaine. Cocaine use generally followed consumption of other addictive substances, especially alcohol and cannabis. Coca paste and cocaine abuse almost always is associated with simultaneous or subsequent use of other legal and illicit substances (cannabis, tobacco, alcohol, benzodiazepines and amphetamines or other stimulants), which are generally taken as substitutes for cocaine or to diminish dysphoric changes. Acute cocaine intoxication may rapidly develop dysphoric, hallucinotic or psychotic reactions. The chronic user eventually develops amotivational, dependent or psychopathizational syndromes. He also frequently presents other serious infectious somatic complications. All of the above amount to high mortality including suicides, homicides, and accidents caused by chronic abuse. To conclude, nowadays, coca paste smoking and cocaine snorting are not uncommon in several Latin American countries. But in Peru, an in-depth clinical research on drug addiction is difficult due to lack of trained personnel, data collecting equipment and appropriate toxicological laboratories.

NOTES

1. F. R. Jeri, "Los problemas mèdicos y sociales generados por el abuso de drogas en el Peru," Revista Sanidad Ferzas Policiales, 46(1985):36-44.

2. C. Carbajal, "Psicosis producida por inhalación de cocaina," Cocaina (Lima, Peru: Pacific Press, 1980), p. 142-148.

3. See F. J. Jeri, C. Sanchez and T. Del Pozo, "Consumo de drogas peligrosas por miembros de la fuerza armada y de las fuerza policial peruana," Revista Ministerio de Interior (Lima),37 (1976):104-112 and N. Noya, "Coca and cocaina: a perspective from Bolivia, NIDA Research Monogrpah No. 19 (Rockville, MD: National Institute on Drug Abuse, 1979), p. 82-90.

4. C. Carbajal el al, "Estudio epidemiológico sobre use de drogas en Lima," Revista Sanidad Fuerzas Policiales (Lima), 41 (1980):1-38.

5. American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders (DSM3), Third Edition (Washington, D.C., 1980).

6. For a more detailed discussion of the methodology see, for example, F. R. Jeri et al, "The syndrome of coca paste," Journal of Pschedelic Drugs, 10(1978):361-370.

7. F. R. Jeri et al., "Further Experience with the Syndrome Produced by Coca Paste Smoking," Bulletin of Narcótics, 30(1978):1-11 and M. Almeida, "Contribucion al estudio de la historia natural de la dependencia a la pasta básica de cocaina," Revista de Neuropsiquiatria, 41(1978):44-53.

8. M. Nizama, Sìndrome de pasta básica de cocaina," Revista de Neuropsiquiatria, 42(1979):185-208.

9. See note 5 above.

10. Some unusual somatic complications of cocaine abuse seen in this series, such as cerebral and cerebellar pyogenic abcesses, persisting vegetative states, heart arrest, lung and meningeal tuberculosis, sideroblastic and hookworm anemias, syphilitic spastic paraplegia, interstitial nephritis, toxoplasmosis, thalium, intoxication, traumatic brain damage and porencephaly are described in more detail in F. R. Jeri, "Algunas asociaciones somaticas en usuarios excesivos de cocaina," in Revista Sanidad Fuerzas Policiales, 46(1985):155-177.

11. F. R. Jeri, "Coca paste smoking in some Latin American countries: A severe and unabated form of addiction," Bulletin of Narcotics, 86(1984):15-31.

12. R. M. Post, "Cocaine psychoses: a continum model," in American Journal of Psychiatry, 132(1975):225-231.

13. See note 11 above.

14. See C. Carbajal in note 2 above.

15. G. Gale, Catecholamine independent behavior and neurochemical effects in rats," in C. W. Sharp, ed., Mechanisms of Tolerance and Dependence, NIDA Research Monograph No. 5 (Maryland: NIDA, 1984), pp. 323-332.

16. Raul F. Jeri, R. Byck and J. Duran and F. Garcia, "Experimental psychological changes recorded during coca paste smoking," Revista Sanida de Fuerzas Policiales, 43(1982):55-60.

17. See note 10 above.

FEMALE CRIMINALITY AND DRUG TRAFFICKING IN LATIN AMERICA: PRELIMINARY FINDINGS

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1. Introduction

In the women's prison of Cuenca, Ecuador, in July 1987 there were 40 inmates of whom 62 percent were waiting for trial on charges under the Traffic of Narcotics and Psychotropic Substances Law, while 40 percent of the women in the women's prison of Guayaquil were facing the same charges. In Rio de Janeiro, similar laws accounted for 28 percent of women prisoners, and in Venezuela the figures were 51 percent for the Female Annex in Caracas and 89 percent for the Santa Ana Penitentiary in Tachira. In the same year, the National Institute for Female Orientation (INOF) in Los Teques was holding 43 percent of its inmates for crimes committed under the Venezuelan Narcotic and Psychotropic Substances Law (LOSEP). In Bolivia, the jails are filling up with the growing number of peasant women used as coca treaders ('pisadoras'), as marketplace sellers of the plant or as distributors of cocaine. The 1984 Annual Report of the Colombian police force warned of "an increase in female participation, especially in relation to the cocaine trade. The number of charges for women traffickers (mulas) rose from 148 in 1983 to 802 in 1984, a 542 percent increase.(1)

An analysis of the rest of the continent may reveal similar figures, for drug production in Latin America may be the most flourishing economic, transnational business of the eighties - in spite of or perhaps because of its illegal character. Disregarding national borderlines, drug trafficking is a business that, in order to expand, has to recruit labor force from a variety of levels on a continental scale. Inevitably, many Latin American women are trapped in an active drug network. However, due to their dependent and subordinate condition in society, they are usually assigned to perform the most difficult and risky tasks.

Given the fact that this enormously profitable business is one of the major foci both of national concern and of police effort in South American, it is remarkable that the important role played by Latin American women has passed largely unnoticed until the recent increase in the female participation in drug trafficking. However, the existing literature on the drug-women connection limits itself to the problem of consumption and its potential effects on the family and health.(2)

In theory, the emphasis on the use of drugs and its concomitant lack of information about women's involvement in drug trafficking may be explained by the fact that crime in general (and most crimes correlate with drug trafficking and use) is traditionally associated with masculinity. Female criminal behavior theory has tended to be sexist. Women have been perceived to be morally superior to men and, by nature, comparatively submissive, passive, weak and non-aggressive. Criminality implies aggression, hence its masculine association. The predominance of the biological factor in this theory leads to the conclusion that the female criminal is inherently different from the male, and more likely to be psychologically disturbed.

The same could be said about the traditional means of crime control for women, which also differ from those applied to men. Historically one can observe on the surface a more condescending, less formal treatment of women, with a tendency to solve the problem within the family, often with psychiatric help, for women who commit crime are regarded as "abnormal." Prison is the last resort in extreme cases. Women are thus restricted to the domain of the family, a concept supported by the State.(3) Their

dependent conditions in society are reinforced without any direct intervention of the authorities. Men as the traditional head of the family control female criminal behavior.

Until recently, this situation has been corroborated by some official crime statistics. It was not uncommon for criminologists to claim that since females represented only one percent of the prison populations, women did not commit crime. Things in developing countries began to change in the seventies, where slight increases in the number of women sentenced and incarcerated became visible. Experts were then pressed to offer their explanations of the new female social phenomenon. Thus, the alternative theories of female criminality emerged. The 'New Female Criminal' theory argues that women's liberation is characterized by violence and leads to a new type of criminal behavior. The 'Economic Necessity' theory claims that female criminality is a result of economic needs and that, with the advent of emancipation, women feel the pressure to satisfy their own demands for they could no longer be dependent upon men. The 'Economic Opportunity' theory maintains that female crime is a consequence of greater access to the economic opportunity infrastructure; that is, women's participation in the formal economic system heavily influences, and presents favorable conditions for criminal actions.

Of the above theories, the 'New Female Criminal' theory has gained the most adherents and it adopts the traditional criterion of considering crime an essentially male behavior. It attributes the rise of female criminality to the emergence of the women's liberation movement. All three theories, however, consider modernization an important variable in the analysis of changes in female criminality; but like other social theories, despite the fact that they are formulated by women they all try to account for this phenomenon from the individual point of view. Arising in the United States, these theories completely overlook the structural effect and prevailing socio-economic conditions, as well as the fact that particular situations of female criminal behavior demand specific types of analyses which may differ from those used in the case of men.(4)

The three theoretical approaches discussed above, along with the different mechanisms of control for female crime

as opposed to mechanisms of control for male crime, show the need to employ distinct analyses and to bear in mind that structural variables are crucial. Any attempt to explain female criminality demands that the socialization characteristics and social opportunities of women be taken into account. These factors may, moreover, vary from society to society. In Latin America there has been a tendency to follow theories and models which had their starting points in issues relevant to women issues in developed countries.

2. Female Drug Criminality in Latin America

Regarding female criminality, the overriding issue in the Latin America context is neither women's liberation, nor access to economic opportunity, nor the nuclear family, but rather the matriarchal family. Despite the institutional distinction of sex roles, in practice the majority of Latin American women usually perform both roles. Thus the above mentioned theories may be inadequate instruments to explain the recent phenomenon of female criminality in Latin America, especially from the sixties on. Instead, it may be necessary to begin examining the discrimination against women that takes place in different areas, such as the legal system, education, work, and health. Such discriminations are violations of the Principle of Equality established under the United Nation's Declaration of Human Rights which, recently, was adopted by many UN member countries including Venezuela.(5)

It follows that before assumptions and prejudgments are made we must consider the complex socio-political conditions of Latin America, and in particular the cash crisis and the accelerating deterioration of the economy which the region has been experiencing over the last decades. The economic crisis has led to an increase in poverty and to the continued development of the so-called "casual" or "informal" economy which, to a large extent, has been dominated by female groups. In turn, this casual or informal economy is closely related to the spectacular growth of the drug agri-business. Marijuana and cocaine, the two foremost illegal exports that follow transnational enterprise channels, utilize a wide variety of resources including great amounts of casual labor, much of which is performed by females.

A recent report from the Interamerican Development Bank points out that

> the 1980s could go down in history as the decade in which the expectations of 400 million Latin Americans were destroyed by recession and external debt. In thirteen countries per capita income in 1986 had decreased by 10 percent compared to 1980; seven nations had suffered a 15 percent decline, and in four of these cases the figure was over 20 percent. In the last six years GNP rose by only 8 percent (3.8 percent in 1986) while the population of Latin American went from 341 million in 1980 to 394 million in 1986, signifying a fall in per capita income of 6.5 percent.(6)

Of course, half of these 400 million Latin Americans are women, and as the International Labor Organization (ILO) has pointed out, they are the bulk of the unemployed and underemployed groups showing an ever increasing trend in most countries over the last decade.(7) At the same time, one out of three households in the world is headed by a woman.(8)

In terms of subsistence strategies, the Latin American woman today is presented with the alternative(9) of selling her labor in the illicit drug labor market. Economic hardship, which affects women more severely than it does men in times of crisis and unemployment, pushes them towards illegal activities which provide greater employment, however illegal, and quicker hard cash yields than any legal activities performed by some females. This explains why a growing number of women are participating in drug production and trafficking. However, even in the illegal economy they are discriminated against by their male counterparts. They do not perform top or intermediate positions, for example. Their roles are limited to secondary occupations such as carrying small quantities of drugs, often concealed on their bodies. Such women, commonly called mules, receive pittances for their work, especially when one considers the enormous profits derived from the business. The illegal drug economy whose upper echelons are mostly dominated by males takes full advantage of the female illegal labor.

In other instances, especially in cases involving the manufacture of cocaine, women are employed in even more arduous tasks. In Bolivia, for example, peasant women and children are contracted as 'treaders,' an activity which often causes skin burns. At times, they collaborate with one or more men - often for personal or family reasons - as carriers, participate in the production of cocaine or allow their homes to be used for stashing cocaine, therefore becoming criminal accomplices themselves. In this fashion a 'domestic labor network'(10) is created to fight economic hardship where the whole family may benefit from the illegal work. However, a woman's role remains on the housework level. As her personal profits are not enough to satisfy her own economic needs, she remains dependent on the man as the traditional head of the household. A woman's participation is almost invariably limited to work which entails greater risks of being stigmatized as a criminal and of suffering more severe legal consequences. For instance, when police make house-searches it is often a woman who, because of her role in the social division of labor, first comes in contact with law enforcement and is held responsible for the crime.

This type of modern criminal activity seems to confirm the myth of sex differences in relation to criminality accurately discussed by Greenwood, especially so when it comes to the legal process.(11) Both men and women sent to prison in Latin America for drug-related crimes come from the less economically privileged classes, lacking education and permanent jobs, which of course is why they participate in the most vulnerable parts of the trade. When arrested, they cannot afford to pay for their defense.

While legal processes for crime committed by both sexes have traditionally been applied equally, in the case of drug-related offenses the situation is now changing in Latin America. This is evidenced by the significant increase in the overall criminality revealed by some official crime statistics, and more specifically by the large number of women in the continent's prisons charged and sentenced for their involvement in the great transnational drug enterprise.

3. Female Drug Crime in Venezuela

Recently, the Venezuelan Vice Minister of Justice stated that

> Previously most cases of female crime were theft and assault. The worrying aspect in the last few years is that female inmates are entering prisons because of their participation as go-betweens in the drug distribution process.(12)

This official statement in the case of Venezuela supports the argument that drug crime in Latin America is rampant. Despite the fact that Venezuela does not have a long tradition of drug trade, available empirical data are used here to support the theoretical remarks stated above.

In July, 1987 I visited the National Institute for Female Orientation (INOF), commonly known as the Los Teques Women's Prison, to do a study authorized by the Ministry of Justice, the data of which are presented here. In Los Teques Women's Prison there were 100 women, representing 43 percent of the prison population, serving time for drug related crimes. Seventy-nine cases were reviewed of which 30 percent (24) were foreigners--twenty-one Colombians, one American, one Argentinian and one Peruvian. The total number of cases examined for this paper was 181 women of which 61 percent (110) were Venezuelan nationals and 30 percent (55) were Colombians. Concurrent to the sample of Los Teques, 28 cases opened at the court of San Cristobal, Tachira between 1985 and 1987 were examined. The latter cases seemed of interest, for the court in mention is located in the border with Colombia. The San Cristobal sample consisted of 6 Venezuelans, 18 Colombians, one Cuban, one English and two of unknown nationalities. Follow-ups of 35 inmates who had been sentenced by Superior Courts during 1985 and of 39 cases (20 Venezuelans, 8 Colombians and 7 with unknown nationalities) in 1986 were also effected.

Regarding demographics, information was available for the majority of cases; that is, the age at which crime was committed, marital status and occupation (see Table 1). Data on educational level were available only for the 79 ONOF inmates of which the results are presented in Table 2. Age at time of crime ranged from 18 to 67. The

TABLE 1

SOCIOECONOMIC ASPECTS OF 181 WOMEN
IMPRISONED FOR DRUG CRIMES IN VENEZUELA

1.1 AGE	VENEZUELANS T.110	COLOMBIANS T.55	OTHERS T.16	TOTAL T.181
Not Known	14	4	9	27
18-22	14(14.5%)	5(9.8%)	2(28.5%)	21(13.6%)
23-27	21(21.8%)	6(11.7%)	1(14.2%)	28(18.1%)
28-32	22(22.9%)	18(35.2%)	1(14.2%)	41(26.6%)
33-37	18(18.7%)	6(11.7%)		24(15.5%)
38-42	10(10.4%)	8(15.6%)		18(11.6%)
43-47	6(6.22%)	2(3.9%)	2(28.5%)	10(6.4%)
48-52	4(4.1%)	2(3.9%)		6(3.8%)
53-57		1(1.9%)	1(14.2%)	2(1.2%)
58-62		2(3.9%)		2(1.2%)
63-67	1(1.0%)	1(1.9%)		2(1.2%)
TOTAL	96(100%)	51(100%)	7(100%)	154(100%)

1.2 MARITAL STATUS				
Not Known	9	5	10	24
Single	73(72.2%)	37(74.0%)	3(50.0%)	113(67.6%)
Married	22(21.7%)	10(20.0%)	1(16.6%)	33(19.7%)
Widow	2(1.9%)	3(6.0%)		5(2.9%)
Divorced	4(3.9%)		2(33.3%)	6(3.5%)
TOTAL	101(100%)	50(100%)	6(100%)	167(100%)

1.3 OCCUPATION				
Housewife	60(54.5%)	34(61.8%)	2(12.5%)	96(53.0%)
Trader	15(13.6%)	4(7.2%)		19(10.4%)
Seamstress	6(5.4%)	4(7.2%)		10(5.5%)
Worker	5(4.5%)			5(2.7%)
Hairdresser	1(0.9%)	5(9.0%)		6(3.3%)
Secretary	4(3.6%)	2(3.6%)	2(12.5%)	8(4.4%)
Student	3(2.7%)			3(1.6%)
Other	16(14.5%)	6(10.9%)	12(75.0%)	34(18.7%)
TOTAL	110(100%)	55(100%)	16(100%)	181(100%)

TABLE 2

EDUCATIONAL LEVEL OF 79 INOF PRISONERS

	VENEZUELANS	COLOMBIANS	OTHERS	TOTAL
Illiterate	2(3.6%)			2(2.5%)
Elementary				
2nd Grade	2(3.6%)	5(23.8%)		7(8.8%)
3rd Grade		3(14.2%)		3(3.7%)
4th Grade	5(9.0%)	2(4.7%)		6(7.5%)
5th Grade	2(3.6%)	2(4.7%)		3(3.7%)
6th Grade	20(36.0%)	1(14.2%)		23(29.1%)
High School				
1st Year	2(3.6%)	1(4.7%)		3(3.7%)
2nd Year	2(3.6%)			2(2.5%)
3rd Year	7(12.7%)	3(14.2%)	1(33.3%)	11(13.9%)
4th Year		1(4.7%)		1(1.2%)
5th Year	5(9.0%)	2(9.5%)		7(8.8%)
University			2(66.6%)	2(2.5%)
Now Known	3(5.4%)	1(4.7%)		4(5.0%)
TOTAL	55(100%)	21(100%)	3(100%)	79(100%)

majority of cases fall within the 23-37 range, the age at which women are in greater need of employment, especially among single parents. The only difference between Venezuelans and Colombians is in the number of cases. Venezuelans committed more drug-related crimes than Colombians did. However, this finding may lack significance if a comparison of the situation of Colombians in their country with that of Venezuelans is not effected.

Data on marital status reflect the prevailing social situation in Latin America, especially among less privileged classes; namely, there is a large number of single women. The figures here are 72 percent for Venezuelans and 74 percent for Colombians. Although information on the number of children was not given, it was noticeable that several of the INOF prisoners were pregnant at time of arrest.

The most interesting information emerging from the sample is regarding occupation. More than half of the sample claimed "housewife" as their main occupation at time of arrest, 55 percent for Venezuelans and 62 percent for Colombians. Such a high number of housewives' participation in the illegal drug economy may merit especial attention. If housework was actually the occupation at the time of crime, it would be worthwhile finding whether the crime was committed while providing the illegal business with "domestic support," or working as an independent illegal entrepreneur, or was it simply that the housewives were the only persons at home at the time of the search or raid. To look into these questions, information on the setting of crime, presence or absence of accomplices and type of drug was collected. Table 3 presents these details. Sixty percent (66) of the inmates were arrested in their residence, of which 75 percent were Venezuelans. Only 15 percent of the inmates were caught for trying to smuggle drugs into prisons. This type of crime may require a separate analysis, for in most of these cases women were carrying very small amounts of drugs which may not necessarily imply dealing drugs in the legal definition. Indeed, it may be likely that they were forced or threatened to do so. On the other hand, the majority of those who were caught at road or airport checking points were Colombians (29%), who represented 57 percent of the sample.

TABLE 3

ASPECTS OF THE CRIMES COMMITTED BY
181 DRUG-RELATED PRISON WOMEN IN VENEZUELA

	VENEZUELANS T.110	COLOMBIANS T.55	OTHERS T.16	TOTAL T.181
3.1 SCENE OF CRIME				
At Home	66(60.0%)	18(32.7%)	4(25.0%)	88(48.6%)
In a Prison	17(15.4%)	5(9.0%)	5(31.2%)	27(14.9%)
Airport/Road Checkpoint	9(8.1%)	16(29.0%)	3(18.7%)	28(15.4%)
In the Street	17(15.4%)	16(29.0%)	4(25.0%)	37(20.4%)
Not Known	1(0.9%)			1(0.5%)
3.2 ACCOMPLICES				
Present	60(54.5%)	35(63.6%)	11(68.7%)	106(58.5%)
Absent	50(45.4%)	20(36.3%)	5(31.2%)	75(41.4%)
3.3 TYPE OF DRUG				
Marijuana	44(41.9%)	13(26.5%)	7(43.7%)	64(37.6%)
'Bazuco'	30(28.5%)	14(28.5%)	3(18.7%)	47(27.6%)
Cocaine	17(16.1%)	20(40.8%)	5(31.2%)	42(24.7%)
Mandrax	2(1.9%)			2(1.1%)
Marijuana & Cocaine	9(8.5%)	1(2.0%)	1(6.2%)	11(6.4%)
Marijuana & 'bazuco'	3(2.8%)	1(2.0%)		4(2.3%)
TOTAL	105(100%)	49(100%)	16(100%)	167(100%)
Not Known	5	6		11

Information concerning the presence or absence of accomplices at the crime setting may be inaccurate, for the arrestees may have declined to disclose them for personal reasons or for fear of reprisals. Despite this, however, data show that over 50 percent of Venezuelans and Colombians were with suspected accomplices at time of arrest.

In relation to the type of drug, the most common possession was marijuana (38%) followed by "bazuco" (28%) and cocaine (25%). Forty-two percent of the Venezuelans were arrested for marijuana possession and 41 percent of the Colombians, for possession of cocaine. This trend reflects the predominance of cocaine in Colombia and the relatively easy transportation of it.

Data on the legal procedure presented in Table 4 show that of the total sample, 29 percent (53) were awaiting sentence and 70 percent (128) had already been sentenced by the superior courts. Moreover, a closer examination of INOF cases showed that there were 60 percent women who had already received sentences for both Venezuelans and Colombians.

These statistics become interesting when they are compared to the rest of the non-drug prison population where almost 80 percent of inmates are awaiting sentence, a thought-provoking aspect of the criminal system. While the Narcotic and Psychotropic Substances Law establishes relatively short periods between arrest and sentence, the main reason for faster prosecution for drug arrests may lie in the legal system's interest in punishing drug offenses as quickly as possible; that is, the legal structure does not regard economic subsistence factors as a major social problem.

When the lapse between arrest and time of sentence is checked, the administration of justice shows an unusual and surprising efficiency in prosecuting drug crime cases. This is even more salient when cases involve Colombian nationals. Of the 32 Colombians sentenced, 69 percent (22) had been prosecuted within a year following arrest. Most of these Colombians sentenced were mules or street dealers who had been arrested for small possessions of drugs. While it was not possible to obtain detailed information on this aspect, it is an element which merits taking into

TABLE 4

ASPECTS OF THE LEGAL PROCESS OF
181 DRUG-RELATED WOMEN PRISONERS IN VENEZUELA

	VENEZUELANS	COLOMBIANS	OTHERS	TOTAL
4.1 STATE OF PROCESS				
(Total Sample)				
Awaiting Sentence	24(21.8%)	23(41.8%)	6(32.5%)	53(29.2%)
Sentenced	86(78.1%)	32(58.1%)	10(62.2%)	128(70.4%)
TOTAL	110(100%)	55(100%)	16(100%)	181(100%)
4.2 STATE OR PROCESS				
(INOF Only)				
Awaiting Sentence	22(40.0%)	8(38.0%)	2(66.6%)	32(40.5%)
Sentenced	33(60.0%)	13(61.9%)	1(33.3%)	47(59.4%)
TOTAL	55(100%)	21(100%)	3(100%)	79(100%)
43. TIME TAKEN TO BE SENTENCED				
Less than 1 Year	33(38.3%)	22(68.7%)	1(10.0%)	56(43.7%)
1 - 2 Years	27(31.3%)	5(15.6%)	2(20.0%)	34(26.5%)
2 - 3 Years	6(6.9%)	3(9.3%)	1(10.0%)	15(11.7%)
3 - 4 Years	4(4.6%)		1(10.0%)	5(3.9%)
Not Known	16(18.6%)	2(6.2%)		18(14.0%)
TOTAL	86(100%)	32(100%)	10(100%)	128(100%)

account, especially considering the severity of the sentences imposed upon petty dealers and exploited mules. This may well be an indication of a systematic discrimination against female offenders.

The present work is preliminary and it needs be complemented with in-depth interviews with the inmates. However, the results obtained from these findings shed light on the socio-economic characteristics of the inmates, as well as on the types of crimes and their corresponding legal procedures. Based on the supporting data, it can be safely stated that the present pattern of crime in Latin America is influenced by drug production and trafficking, which in turn may have roots in the ever growing unemployment, especially among the less privileged. Some women have found a new source of income. But the illegal economic activities offer only a temporary participation in the labor market. Women are stigmatized as criminals. Current Latin American societies' inability to solve both the increasing social injustice and drug trafficking may be using women as structural scapegoats.

NOTES

1. Policia Nacional, Colombia, Criminalidad en 1984, No. 27.

2. See for example Revista Fd (Mexico: Centro de Integracion Juvenil de Mexico, n.d.).

3. See Mary Mcintosh, "The State and the Oppression of Women," in Annette Kuhn and Marie Wolpe, eds., Feminism and Materialism: Women and Modes of Production (London: Routlege, Kegan and Paul, 1978).

4. Victoria Greenwood, "The Myth of Female Crime," in Allison Morris and Lorraine Gelsthorpe, eds. Women and Crime, Cropwood Conference Series (Cambridge: Institute of Criminology), pp. 73-84.

5. For further details, see Sonia Picado Sotela, "La Mujer y los Derechos Humanos," Revista del Instituto Latinoamericano de Derechos Humanos No. 2, San José, Costa Rica, Julio/Diciembre, 1985.

6. El Nacional (Caracas, Venezuela), 8 September, 1987, p. A8.

7. Sonia Picado Sotela, op. cit, p. 22.

8. Ibid., p. 26.

9. The questions formulated by Eleanor M. Miller, Street Women (Philadelphia: Temple University Press, 1986) are valid for the Latin American woman and her involvement in the drug economy.

10. The term "domestic household network," used by Eleanor M. Miller (p. 181) fits in the situation discussed here.

11. Victoria Greenwood, op. cit.

12. El Nacional (Caracas, Venezuela), 26 September, 1986.

REFERENCES

Adler, Freda
1976 Sisters in Crime. New York: McGraw Hill.

Bowker, Lee H.
1984 "La Influencia de las Instituciones sobre la Delincuencia Femenina Internacional." Revista Policia Nacional No. 377, Colombia, Bogota.

Castillo, Adicea
1985 "La Crisis y la Situación de la Mujer Trabajadora," unpublished paper.

Ettore, Betsy
1985 "Psychotropics, Passivity and the Pharmaceutical Industry." In Henman, Anthony, Lewis Roger and Malyon, Tim. Big Deal: The Politics of the Illicit Drug Business, London: Pluto Press.

Gavigan, Shelley
1983 "Women's Crime and Feminist Critiques: A Review of the Literature." Canadian Criminology Forum, 6(1):75-90.

Leonard, Eileen B.
1982 Women, Crime and Society: A Critique of Criminiology. New York: Longman.

McIntosh, Mary
1978 "The State and the Oppression of Women." In Annette Kuhn and Anne Marie Wolpe, ed. Feminism and Materialism: Women and Modes of Production, London: Routledge, Kegan and Paul.

Miller, Eleanor M.
1986 Street Women. Philadelphia: Temple University Press.

Picado, Sonia
"La Mujer y Los Derechos Humanos." Revista Instituto Interamericano de Derechos Humanos, No. 2, San Jose, Costa Rice.

Reid, Susan A.
1985 "The Reproduction of Women's Dependence as a factor in treating the Female Offender." Canadian Criminology Forum 7(2):129-143.

Coca Paste and Crack: A Cross National Ethnographic Approach*

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Introduction

Substances derived from the coca leaf, including cocaine hydrochloride (HCL), are assigned a variety of names. Terms like bazooka, kete, pitillo, and crack or rock are well known among drug researchers, some academics and the general audience. This diversity in the nomenclature of cocaine-related substances may be confusing. For instance, some believe that crack is a powerful substance with cocaine contents as high as 100 per cent, while others argue that bazooka (henceforth called bazuco) is a residual substance left after refining coca paste into HCL,(1) and that "it is undesirable because addicts see it as garbage."(2) Bazuco (Colombia), pitillo (Bolivia), and kete (Peru) are coca paste smoked by addicts and crack is an adulterated, based street substance, not a further refined cocaine.

There is much need to inform the interested audience about the nature of the most common drugs used both in large scale consumer societies and exporting countries. Grasp of the marketing aspect of the international drug subculture may contribute to a better understanding of the behavior of individuals connected to the use and abuse of substances

derived from the coca shrub and other legally manufactured substances. This paper presents a cross-national discussion of the differences, similarities, and variations between and among coca paste (bazuco, chicle, kete, and pitillo), cocaine and crack in the North-South international drug panorama.(3) Discussions include the folkloric characteristics of the drug subculture both in source countries and in New York City, which has the largest addict population in the international market.(4)

Data for this paper come from two different groups of subjects, each of which represents its corresponding universe. Information documenting coca paste, bazuco and chicle is part of a major field research program carried out in Peru from 1981 to 1987. Material representing the American urban drug subculture was gathered during my employment with the New York State Division of Substance Abuse Services (DSAS) from 1986 to 1987. During the latter stage, I followed two basic methodological approaches. Initial steps designed to draw some facts on street dealings and urban drug ethnography involved scheduled conversations with key informants. To validate the information gathered during the preliminary stage, a follow-up observation of crack manufacturers and dealers not connected to the initial informants was effected. This data verification process not only took place with the participation of different subjects, but also in distinct neighborhoods which prevented duplication and/or overlap of facts. To convey a better understanding of the similarities and differences between coca paste and its variations and crack and the social characteristics of sellers and users, the article is divided into three parts: coca paste and its variations, crack and a concluding section.

Coca Paste

The process of breaking down the chemical contents of the coca leaf to obtain cocaine hydrochloride is long and somewhat complex.(5) Age of the leaves, altitude of the land, purity and amounts of sulphuric acid and other ingredients used in the production of coca paste all have direct effects on the quality of coca paste. Too much sulphuric acid, for example, may destroy the alkaloid contents in the leaves, thus forming other substances with

less cocaine content than in ideal or normal conditions. Conversely, less sulphuric acid put in the mixture causes it to take longer to extract cocaine from the leaves, which may also have an effect on the quality of the substance.

Sulphuric acid is added to water deposited in a cement or plastic pit in proportions of five kilos of it for every 100 thirteen-litre buckets of water.(6) Then, the coca leaves are soaked in the acid fluid for twelve to eighteen hours.(7) When the work is carried out in a concrete pit some human labor is needed to help soak the leaves. Pit wage earners stomp on the floating bundles of leaves for about one hour.(8) The acid fluid containing alkaloids, resins, tar and many other impurities takes on a light brown color. This fluid is commonly called caldo, (broth); and it tastes something like a heavy coca tea with its characteristic smell. After the required soaking time, the acid fluid, in small amounts, is decanted to a smaller pit usually attached to the bigger pit.

In the second pit, the acid fluid (caldo) containing alkaloid is neutralized by adding a base (a compound capable of mixing with an acid). The basing element may be sodium carbonate, calcium oxide (lime) or cement, which is mixed with the acid fluid by stirring with a wooden instrument resembling a capital T whose flat cross bar has perforations to effect the blending process. After about fifteen minutes of stirring, the neutralized fluid containing alkaloid is mixed with an organic dissolvent (kerosene or gasoline). The same blending procedure is repeated for about fifteen minutes. The organic fluid (kerosene or gasoline) containing alkaloid cocaine, which because of its lighter molecular weight remains on the surface, is decanted.

In a separate plastic container with a capacity of about 20 gallons, water is mixed with sulphuric acid in the proportion of one tablespoonful and a half of sulphuric acid per every litre of water. This is the second critical formula, for an error in the water/sulphuric acid ratio will result in coca paste of bad quality. The fluid obtained in the second step is poured into this acid solution and stirred. The acid fluid draws the alkaloid cocaine from the organic fluid acid (kerosene or gasoline). Kerosene is separated and used again and again until the process is finished. If calculations and steps are properly followed, this last fluid takes on a

FIGURE 1

Most coca paste entrepreneurs make their portable coca paste pit using plastic sheets sold in hardware stores.

crystal clear color. Sodium carbonate is then added to the solution. A dirty white substance (coca paste) is formed at the bottom of the plastic container. The acid fluid is disposed of and the substance, placed on a piece of fine cloth and squeezed to rid it of water and then dried in sunlight.(9)

In addition to the miscalculation in the mixture of one of the two acid fluids, there are many other reasons for obtaining low quality coca paste. First, some varieties of coca leaf such as the Erythroxylon novogranatense, known as Colombian coca, and the Erythroxylon truxillense may present more difficulties in extracting cocaine from the leaves (Plowman, 1980:109 and 1986:21). Second, coca leaves sold to coca paste entrepreneurs may have been picked before maturity; they may have been grown in different areas or may come from plants of disparate ages. Third, the most frequent cause for the failure is lighter sulphuric acid which some chemical suppliers sell. Mixers or "chemists" are experts who usually are aware of all these variables. However, unsuccessful occurences are not rare at all.

Normally, mixers always want to learn the origin (farmer's name) and approximate dates of picking of the leaves. What this actually means is that the mixers are skillful and experienced persons who know their social and natural environments to such a point that cultivation and mixing routines are, as they say, "Almost their second nature." Mastery of their specialty in one area may not be easily duplicated in other areas where the circumstances may be dissimilar. The radius of the mixer's geographical movement may be limited by the same circumstances and conditions which govern quality of the coca leaf, trafficking of chemicals and the degree of the coca paste entrepreneur's or the mixer's relationship with law enforcement and political repression agents.

Chicle is the coca paste which is the outcome of a miscalculation in the mixture of the acid fluid. Compared to regular coca paste, in the international cocaine market, chicle has a low market value, for the washing (a further processed coca paste also called cocaine base) and the refining of it into cocaine hydrochloride are more costly. At times, chicle is lumped with the good coca paste and sent to the international market which, because of the cost of

production and difficulty to sell it may be retailed to petty street dealers and addicts.

The drug subculture may assign different terms to coca paste or cocaine smoking. Teachers, residents, and travellers in coca producing areas inform that, back in the seventies, coca paste smoking among rural and highland urban addicts was known under different terms, such as tangana and bazuca. Probably, tangana comes from the Quechua word tanqa, a variation of tangay which could be translated into the English words "to push" or "to shove." In northeastern Quechua dialect, tangana is a noun which means "something to push, or propel with." In many jungle areas, tangana is still used meaning "oar." In the highlands, when peasants feel fatigue, are thirsty or hungry they chew their coca leaves saying mama cuca ma tangarkamay, meaning, "magic coca, please give me strength." The Quechua word tangana, used to describe coca paste smoking, may lead one to believe that the Andean cultural social practice (coca chewing) may have partially contributed to the lingo of coca paste smoking.

As migration to the jungles increased, new terms were coined. Bazuca, cuete or cuetón (firecracker), or cohete (rocket) and sharuta (cigar made out of whole tobacco leaves) were used interchangeably to refer to coca paste smoking; and as consumption of the raw drug spread out to the South American continent, packaging of the substance was adopted. Some residents say that the initial retail distribution code name for coca paste in Peru was un paquete de cuete or cuetón or cohete. This long and cacophonous phrase may have been dropped and contracted to a single word cuete or kete which conveniently described both the package (paquete) and its contents cohete (coca paste). The word cuetón, meaning high quality coca paste, is still used among addicts in Peru. In Bolivia coca paste is retailed under the name of pitillo and in Colombia it is done so under the name of bazuca. Small packets containing about two milligrams of coca paste are packaged in used newspapers picked up from garbage cans and bags. Individual packages are usually consolidated in plastic bags, empty match-boxes or cigarette boxes. Depending upon the distance of the market from the producing areas, prices for coca paste range from about 50c to $1.50 per package.(10)

The most common material used to adulterate coca paste is yucca flour.

The Organization of the American States (OAS) estimates that in 1984, there were 280,000 drug addicts in Peru of which 100,000 were addicted to coca paste and 180,000 to cocaine, that is, 1.4 per cent of the total population.(11) The modality of smoking coca paste mixed with cigarette or tobacco is almost a universal practice in the Latin American drug subculture. About one-fourth of the tobacco from a cigarette is taken out, coca paste (**kete**) is poured into the cigarette, and then the tobacco that was removed is replaced to retain the coca paste. Deep in the jungle, they put the coca paste in a **sharuta** (a cigar made out of local tobacco leaves). In the jungles, the smoking quarters have an indescribable characteristic smell that comes out of the mixture of sewage, organic wastes, lack of hygiene, and the nauseating smoke of coca paste. A walk along the shanty town streets, especially the blocks where the **fumones** hang around, are for the most part avoided by local residents and tourists. **Fumones** of every age and sex sleep on newspapers, cardboards or on plain cement pavements in the streets and parks, just as alligators do in the hot and humid jungles.

Theft, robbery, prostitution, and homosexual activities are the most common methods of getting cash to buy **ketes**. The younger addicts usually get their daily dosages by way of homosexual services or exchange of sexual gratification for coca paste. Non-addict homosexual and heterosexual individuals also trade coca paste for sexual gratification.

David is a fourteen-year old Caucasian boy. He has been smoking coca paste for the last four years. On his long hair, black lice (hair lice) run about like ants on an ant-hill and white lice (body lice) are all over David's neck. "How did you become an addict, Dave?" "Like everyone else." "What do you mean like everyone else?" "Who the hell cares anyway and stop asking questions you mother...and get lost, will you?" Next morning I find David sleeping on the porch of a state office building along with two other addicts. I sit on the sidewalk to hear their morning conversation. The three of them scratch their bodies permanently while they talk. "Wake up fucking Jose. Do you have a kete on you?" Jose folds the newspaper

FIGURE 2

Addiction to coca paste is the worst negative effect of cocaine production. Children as young as ten-years old smoke the impurity-ladden coca paste.

(headlining the results of the national beauty pageant) with which he covers his body, and replies, "Shit, I do not have [one] even for myself. Maybe our new friend has some [**ketes**] left. Yesterday he traded his asshole for ten ketes. The owner of the bodega, that old man who likes kids, came and gave him [coca] paste." "Let me check him out," says David. He gets up and leaves for downtown. He stands by the market street for a few minutes. He goes to the back of a bank only to find empty paper "beds." Then he walks along the main street and turns left towards Chicago.

David's portrait is just one of the many hopeless children who now wander around in Peru and their desperation to satisfy their craving for drugs may even cause violent deaths. Cupizo, a seventeen-year old boy, who had started smoking coca paste when he was ten years old, was stabbed by a local fruit peddler. The peddler was a **kete** street dealer and the addict had been his regular customer. One day Cupizo walked to the peddler's spot and decided to rob the peddler of his **ketes**. The fruit seller knifed Cupizo mortally. Cupizo died in the hospital pleading for one puff of coca paste.(12)

There are other signs of the epidemic use of coca paste and cocaine among many rural and urban groups in Latin America. Students, employees, and teachers, as well as police members are prone to coca paste smoking. There are addict policemen who go after the **kete** dealers or retailers. They then take the drug from sellers for their personal use. Other corrupt law enforcement agents even sell the coca paste seized from petty dealers. In the jungles, there is one interesting use of cocaine among male adults called **penqa**, a drinking hangover "cured" by snorting cocaine. Cocaine is widely used by many middle- and upper-class people.

There are two methods of finishing the coca paste to extract the alkaloid cocaine from its basic form: either cold or hot process. The hot procedure is the technique in which laboratory alembics are used. This use of the traditional chemistry infrastructure calls for fixed or permanent work places. The cold method is a more practical procedure. It requires glass or porcelain ware and chemicals. The average amount of coca paste needed to get one kilo of cocaine hydrochloride is 3.75 kilos of coca paste.

Crack

In the outbound movement of coca paste,(13) the next immediate chemical process is the removal of the impurities to make cocaine hydrochloride. Initially, it was assumed that coca paste was exported to "Colombia."(14) Today, before it is shipped to the refining laboratories coca paste is washed. However, not the whole production of the washed or cocaine base may be shipped to "Colombian refining factories." Many freelance and organized laboratories set up in urban and rural settings absorb part of the national productions both in Bolivia and Peru.(15)

Cocaine smuggled into the United States with a purity of from 50 per cent to 95 per cent is sold for about $25,000.00 per kilogram.(16) In the best of cases, cocaine retailed by street dealers may contain about 20 per cent of cocaine hydrochloride. That is, many individual entrepreneurs may take part in dealings from the "kilo man" down to the street "coke dealer" or the crack manufacturer; and although some street dealers may be connected to high level distributors, most crack entrepreneurs usually buy their cocaine from ounce or gram dealers.

Once street (adulterated) cocaine is procured, conversion of low-quality cocaine into crack is relatively simple. Unlike the production of coca paste, in which an error in the estimation of the quantity of sulphuric acid to make the first acid fluid may result in coca paste of inferior quality, the preparation of crack may not present high risks of destroying the alkaloid contents of the street cocaine. Materials required to make crack are sodium bicarbonate (baking soda), lidocaine ("comeback") or amphetamine, known on the street as "speed." Thus, cocaine, $C_{17}H_{21}NO_4$, a white, bitter, crystalline alkaloid, and lidocaine, $C_{14}H_{22}N_2O$, a crystalline compound that is used as a local anesthetic, mix to form a different alkaloid compound. What this actually means is that crack retailed in the streets may contain more amounts of adulterants than cocaine hydrochloride and is not a highly concentrated form of cocaine as some people tend to believe.

The argument that crack is available in the streets at low prices with alkaloid cocaine contents of as high as 100 per cent may not have scientifically tested supporting

facts.(17) However, lack of reliable, detailed information on the chemical breakdown of crack may be justified by the fact that the inner networks of the drug subculture are difficult to penetrate and are constantly changing. Routine buys and laboratory tests to establish the cocaine contents of crack are not part of the social research policy and, even if they were so, they would be too costly to carry them out.

Some Latin American professional chemists immersed in the various stages of the cocaine process, and who have contact with crack manufacturers argue that crack and freebased cocaine are processes of "stepping back" from cocaine hydrochloride to the impurity-laden coca paste-type of substance.(18) This claim may not be totally correct, for crack and freebased street cocaine may have a lesser number of impurities than coca paste.(19) A brief discussion of crack and freebased street cocaine will help establish the differences and similarities between crack, freebased street cocaine and coca paste.

If one gram of cocaine hydrochloride with a purity of about 80 per cent was adulterated with one gram of lidocaine ($C_{14}H_{22}N_2O$) or amphetamine ($C_{18}H_{28}N_2O_4S$), another white crystalline compound, the end result would be two grams (2,000 milligrams) of based street cocaine with 40 per cent purity. That is to say, if only lidocaine were used to cut the high quality cocaine, street cocaine may not be free of lidocaine used as adulterant at all, for lidocaine remains in the based substance or, as it is called in the street jargon, it "comes back" with cocaine. A similar phenomenon may be true when amphetamine ("speed"), another alkaloid, is used to cut cocaine. The fact that crack is sold as solid cocaine seems to make some people conclude that, indeed, crack may be refined cocaine when in reality it may contain more adulterants than street cocaine.

Currently, in some areas of New York City, crack sells for as little as $5.00 per vial containing three pellets with a total weight of about 150 milligrams. Logic dictates that a drug dealer's interest, be he a crack manufacturer, an international trafficker, or a small cocaine entrepreneur, is economic. As in any underground operation, drug dealers at every level may generate gains or make up for losses with the sale of either bootleg and/or bad quality cocaine. Thus,

FIGURE 3A

Crack is one of various forms of cocaine. A crack smoker in New York City.

FIGURE 3B

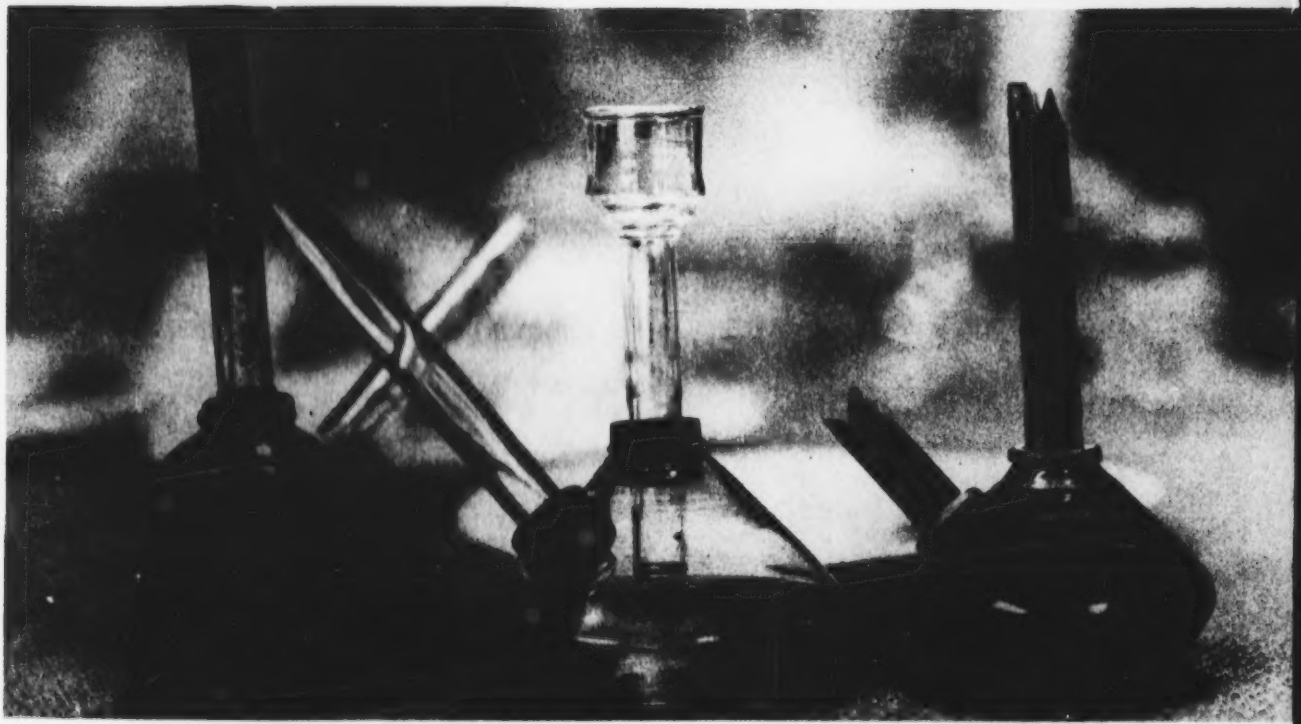

FIGURE 4

Glass pipes used to smoke crack are sold at head shops and on the street.

the relatively low price of crack may be due more to the presence of adulterants than to the oversupply of good quality cocaine in the streets. That is, in order to realize profit margins, crack dealers have to "beat" the substance itself, the customers, law enforcement, as well as other competing dealers.

One may conclude then that profitability of crack dealing may reside in the number of pellets and vials put in the streets, not in the amount or quality of cocaine hydrochloride included in crack. If 56 grams of street cocaine containing 28 grams of lidocaine were based the result would be approximately 84 grams of crack. However, the weight of crack would be less if the adulterants were based out, which may not be true in the case of crack production. The 84 grams of based street cocaine, or crack, yields about 425 three-pellet vials of crack which, sold at $10 per vial, yields about $4,500.

The almost epidemic use of cocaine has proliferated crack and base houses and petty street independent dealers. An indication of the flowering growth of crack is the fact that there has been a 71 per cent increase in felony indictments in New York City. So many prisoners are crammed in the proliferation of crack that the criminal justice system has been compared to a "Snake trying to swallow a mongoose." Despite their full operation, the federal courts are inundated with crack cases.(20) The profits derived from the production and sale of crack seem to out do the risks of the dangerous entrepreneurship.

Along with crack the availability of some prescription drugs such as valium, elavils and codeine has increased substantially. Dealership in pills, marijuana, cocaine, heroin, crack and other drugs seem to be concentrated in buildings and multi-family houses, especially in city projects. These multi-drug type marketing settings make the provision of legal and illicit substances very convenient to purchase in one location. These kinds of underground dealing settings seem to be organized on codes of communication and special protective measures that make the illicit markets smooth, ongoing operations.

Conclusions

The subcultural nomenclatures for the variations of coca paste and crack may have their origins in the effects described by initial addicts or "underground guinea pigs." Coca paste evolved from rocket to kete; and crack may have been named as such after its crackling sound or after its distinct high from other drugs. (Thus, early users may have described it as "It cracks you up," for example).

It is clear that crack and coca paste differ in the number and kinds of additives. In ideal cases, crack contains minimum amounts of cocaine; and the low retail prices of it may be due to street bootlegging, not to the oversupply of cocaine from exporting countries; that is, crack may be just based non- cocaine-alkali bought from head shops, stolen from hospitals, or distributed by individuals as means of illegal income. Coca paste and its variations (bazuca, pitillo, kete, chicle, and many others) contain varied amounts of alkaloid cocaine. In the best of conditions coca paste may not contain more than about 27 per cent of alkaloid cocaine. Some of the impurities found in the coca paste, in addition to adulterant substances, are kerosene or gasoline, sulphuric acid, basing elements such as sodium carbonate or calcium oxide and many other substances released from the coca leaves.

Regarding marketing and the use of either drug, while both crack and coca paste are based substances, there is a difference in the distribution strategies and consumption methods. Coca paste is sold in small packages, similar to the distribution of marijuana. There are indications that coca paste (basuco) is selling in some neighborhoods in New York City for as little as $1. Availability of basuco in the international consumer center may be due to the increasing scarcity of chemicals, especially ether and hydrochloric acid, in producing centers. However, it is difficult to determine whether "bazuco" is coca paste or adulterated cocaine base (washed coca paste) which may contain as much as 60 percent cocaine alkaloid. Bazuco may also be another version of crack or bootleg cocaine sold under such name in Hispanic neighborhoods. If the former is true, its addictive effects and social costs may be much more serious than the social costs of maintaining heroin addicts, for other than some expensive private treatment programs, there are no

public residential or ambulatory programs available to treat the new generation of smoking addicts.

Both in source countries and consumer centers production of coca paste and its variations, crack, and cocaine and the distribution of them are creating an economic dependence among low income and marginal groups. Street modalities of procuring criminal income for the satisfaction of such a costly addiction range from homicides to "neighborhood prostitution," in which bargain young female crack smokers may provide sexual gratification for as little as one pellet of crack or even for just one puff from the pipe of other addicts.(21)

NOTES

*My thanks to the street workers of DSAS for sharing their knowledge on drugs in general and crack in particular. My gratitude to Alvin Warren and Alex Ramos for their invaluable information on crack and to my colleague Bruce Stepherson for his comments to improve the final draft.

1. Currently, the New York State Division of Substance Abuse Services provides information on bazuca as "a substance left after coca paste was refined into cocaine."

2. Elizabeth Mora, "Bonanza del bazuco en las calles de Nueva York," El Tiempo (Bogota, Colombia), 4 February 1988, p. 1A. It seems that the official interviewed for this article assumes that bazuco is a derivative of the Spanish word basura (garbage).

3. Here South-North does not suggest that the exchange between producer-trafficker-consumer follows the same or similar guidelines and channels of the South-North international political arena with which most academics are familiar.

4. In 1985, the State of New York had a total of about 250,000 narcotics abusers (NYS Division of Substance Abuse Services, Five-Year Plan, October 1985, p. 23).

5. For more details see, Edmundo Morales, Cocaine: White Gold Rush in Peru (Tucson, AZ.: University of Arizona Press, 1989).

6. It is difficult to record the ideal relative acidity (pH), for they do not use any kind of instrument to test the result of the combination.

7. Some journalists inform the American public (Time, Feb. 25, 1985) that "coca leaves are soaked in a solution of water and kerosene, which releases the cocaine contained in the leaves." Because of the differences in their molecular weights, water and kerosene (carbon oil) cannot be chemically combined, therefore, kerosene is not used in the extraction of cocaine from the leaves.

8. For a discussion of coca field and pit wage earners in Bolivia, see Kevin Healy, "The Boom within the Crisis: Some Recent Effects of Foreign Cocaine Markets on Bolivian Rural Society and Economy," in Christine Franquemont and Deborah Pacini, eds. Coca and Cocaine: Effects on People and Policy in Latin America (Cambridge, Cultural Survival, 1986:101-143).

9. Generally, coca paste is sold right at the end of the process, for if it is kept for longer periods it loses its weight.

10. Because of the high devaluation of national currencies in Latin America, both wholesale and retail prices drop tremendously when converted into US$.

11. Although there are no reliable statistics on the number of coca chewers in Peru, the Ministry of Health establishes the number of coca chewers as 1.5 million, while others such as Deustua (1987:44) estimate the traditional users of coca as 4 million. It is clear, however, that about 170,000 (Deustua, 1987:25) hectares of coca leaf production go to the preparation of coca paste.

12. From an anti-drug handout prepared by the Corporacion Departmental de Desarrollo de Huanuco, Divulgacion No. 04-85, "Cupizo y el infierno blanco," Huanuco, Peru, 1985.

13. The North route of the coca paste trafficking has now changed to take different and, at times, unsuspected directions.

14. In the coca paste-cocaine underground world the term "Colombia" is not clear, for it may mean Colombia or abroad or just outside the area of production.

15. Before reaching refining laboratories ("kitchens"), the movement of coca paste creates many occupations in legitimate activities as well as among manufacturers themselves. Discussion of the social and economic behavior of the clusters of people involved cannot be done in this paper. For an accurate portrayal of the influence of the cocaine economy in the Andes, see Edmundo Morales, Cocaine: White Gold Rush in Peru (Tucson: University of Arizona Press, Spring 1989).

16. Depending on supply of chemicals used to refine coca paste, law enforcement and the quality of cocaine, the price of one kilo of cocaine could vary from about $15,000.00 to about $35,000.00.

17. For example, some believe that a $100.00 investment in cocaine can yield as much as $7,000.00 profit.

18. Definition of coca paste in existent literature is not clear. For instance, Jeri (1978) uses coca paste and cocaine sulphate as interchangeable terms. He does not draw a line between these two terms. Jeri argues that "coca paste may contain 60 (percent) to 80 percent of cocaine sulphate." In other instances he states that alkaloid cocaine contents in coca paste range from 40 percent to 91 percent.

19. Some of the impurities found in the coca paste are kerosene, sodium carbonate, calcium oxide, sulphuric acid, resins, etc.

20. Peter Kerr, "Crack Burdening a Justice System," New York Times 24 November, 1986, p. A1.

21. "Neighborhood prostitution" is a term coined by Di, an undercover researcher at the New State Division of Substance Services.

REFERENCES

Allen, Catherine J.
1981 "To be Quechua: the symbolism of coca chewing in highland Peru." American Ethnologist 8: 157-168.

Bagley, Bruce.
1986 "The Colombian Connection: The Impact of Drug Traffic on Colombia." In Pacini, Deborah and Christine Franquemont, eds. Coca and Cocaine. Effects on People and Policy in Latin America. Cambridge, MA.: Cultural Survival

Barrantes Campos, Roger.
1984 "Implicaciones Farmacológicas en el Uso de las Hojas de Coca en el Peru." Boletìn de Lima 34 (6), July: 67-72.

Bolton, Ralph,
1976 "Andean Coca Chewing: A Metabolic Perspective." American Anthropologist 78 (3), September: 630-633.

1979 "On Coca Chewing and High-Altitude Stress." Current Anthropology 20 (2), June: 418-430.

Castro Morales, Jorge.
1987 "Farmacodependencia en el Peru." Psicoactiva. Lima, Peru: Centro de Información para la Prevencióon del Abuso de Drogas, 1 (1), pp. 15-53.

Deustua, Alejandro.
1987 El Narcotráfico y el Interés Nacional. Lima, Peru: Centro Peruano de Estudios Internacionales.

Dobkin de Rios, Marlene.
1984 Hallucinogens: Cross-Cultural Perspectives. Albuquerque: University of New Mexico Press.

Fuchs, Andrew.
1978 "Coca Chewing and High-Altitude Stress: Possible Effects of Coca Alkaloids on Erythropoiesis." Current Anthropology 19 (2), June: 277-291.

Hanna, Joel.
1974 "Coca Leaf Use in Southern Peru: Some Biosocial Aspects." American Anthropologist.76 (2), June: 282- 96.

Healy, Kevin.
1986 "The Boom within a Crisis: Some Recent Effects of Foreign Cocaine Markets on Bolivian Rural Society and Economy." In Pacini, Deborah and Christine Franquemont, eds. Coca and Cocaine. Effects on People and Policy in Latin America. Cambridge, MA.: Cultural Survival.

Jeri, Raul F.
1978 "The Syndrome of Coca Paste." Journal of Psychedelic Drugs, 10 (4), Oct-Dec.361-70.

Morales, Edmundo.
1989 Cocaine: White Gold Rush in Peru. Tucson: University of Arizona Press.

Morales, Edmundo.
1986 "Coca and Cocaine Economy and Social Change in the Andes of Peru." Economic Development and Cultural Change. 35 (1), Fall:143-161.

1986 "Coca Culture. The White Cities of Peru." Thesis CUNY Graduate Magazine 1 (1), Fall: 4-11

Ramirez, Yonel and Ruiz, Pedro.
1980 "El Tráfico Ilìcito y el Uso Indebido de Coca y Cocaina detectados en el Peru en 1978." In Jeri, F.R. Cocaina 1980. Lima, Peru: Pacific Press, pp. 228-233.

Siegel, Ronald K.
1986 "Cocaine in Herbal Tea." Journal of American Medical Association 255 (1) Jan 3, p. 40.

Van Dyck, Craig and Byck, Robert.
1982 "Cocaine" Scientific American, 246: 128-41.

Weil, Andrew.
1977 "Observations on Consciousness Alteration." Journal of Psychedelic Drugs 9 (1), p. 75-78.

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